JOURNAL OF THE
AMERICAN INSTITUTE OF ARCHITECTS

Vol. XI FEBRUARY, 1923 Number 2

The Autobiography of an Idea

By LOUIS H. SULLIVAN

Chapter IX.

Boston

The English High School

WHILE at Lyons Falls, Louis made acquaintance of the sons of the tenant farmer: twins, two or three years older than he, who appraised them accordingly. Broad shouldered, heavily built throughout, with large featured homely faces evenly browned by the sun, they had big coarse hands which Louis envied them. They swayed and lurched in talking, shifting their feet; good natured, heavy-minded fellows, taller than Louis. One day they said they were bound for Brown's Tract and would have as guide a trapper, a grown man; that they would head for a certain lake twenty miles away, where the trapper had a shack and a canoe; that they were after game; they asked Louis if he would like to come along. Louis jumped at a chance he had been aching for. Many a day he had wondered what a forest could be, within its depths, as he gazed at the mass of sombre and silentious green rising from the dark waters of the river and had seen no hope to solve the mystery. The boys warned him that it would be rough, heavy work, with some danger; but he said the rougher the better, and that as to the dangers he was curious.

Now, afoot, heavy laden, they have passed the fringe of the forest, and begun the ascent of a rough stony trail, climbing and descending the hills in a winding obscure way. Five miles in, they cross a "bark road," so called, a ragged gash through the woods with stumps of trees, loose boulders and corduroy for roadbed. Strewn along the way of the road lie huge naked hemlocks stripped of bark for the tanneries to southward. No trail beyond this road; the real hard work, the stern hardship begins in the utter wildness of ancient fallen trees, tangled wildwood, precipitous ravines, the crossing of raging torrents—feeders of the Moose River—roaring under masses of forest wreckage, involving high danger in the crossing, their waters dark brown, forbidding, foaming brown-white; detours to be made around impassable rock outcroppings; wadings through cedar swamps; a bit of smooth needle-carpeted floor, for relief at times; many panting rests, many restarts, grimly wending their way between close-set uprearing shafts of mighty hemlocks, and tamaracks, with recurring narrow vistas quickly closing as the trampers cross a plateau, and then again descent and climb and hardship, hidden danger of falling aged trees, no warning but the groan, then a crash and trembling earth: so pass four weary ones through a long August day, amid cathedral gloom, the roaring and the stillness of primeval forest.

By sundown they have made ten miles. A hasty camp—no tent, a quick fire—coffee, bacon, hardtack, water from canteens; a small tamarack felled, its delicate fragrant boughs laid thick for a bed, a circle of smudge-fires, and shortly, four humans, in soaking boots, and clothing soaked with sweat and spray, sleep the instant sleep of exhaustion, in the dark of the moon, in the pitch black forest, as the circle of smudge fires faintly smoulders.

At early dawn the trapper blows no horn, he rings no bell, but in bright good humor emits the awful siren of the screech-owl: the dead turn in their slumber-graves. Once more—the dead jump up. Campfire lighted, hurry-up, fires trod out, packs again on sore backs, stiff legs start and shortly limber. That day six miles of going, and again death-asleep. Next day four miles of easy going as they reach the margin of a wide basin or valley, with level floor and stop at one end of a sumptuous lake, resting placid and serene as a fathomless mirror upheld by forest walls. At this point is a limited natural clearing; nearby is the shack, a large rough-hewn affair of unbarked sapling logs; and, bottom up, in the deep shade are found

canoe and paddles. It is early afternoon. They take their ease, lying awhile on the green sward, then spread boots and clothing in the sun to dry, bathe in the cool shallows safe from the icy spring-fed deep of the lake, resume half-dried boots and clothes and leisurely arrange the camp. Meanwhile the trapper, tall and lank, brings in a brace of partridge. Now all is joy, the pains forgot, the prize attained—they burst into raucous song to the effect that they are "dreaming now of Hallie."

Louis, musket in hand, walked to the edge of the shore, stopping not far from the timber wall. The lake, to his eye, appeared three miles long and three-quarters wide. He raised his gun and fired straight ahead. Instantly set in an astounding roar. It smashed, dashed and rolled sonorously along the mighty wall, suddenly fainting into an unseen bay, then rolling forth again into the open, passing on like subdued thunder; from the beginning scattering wild echoes, which in turn re-echoed criss-wise and cross-wise, an immense maze of vibrations, now passing slowly in decrescendo into a far away rumble and nearby trembling, fainting, dying, as the forest sternly regained its own, and primal stillness came. This display was too dramatic, even for Louis. Once was enough. It seemed too much like an eerie protest, the wildly passionate rejoinder of a living forest disturbed in its primal solitudes of contemplation. Yet the stupendous rhythm, the orchestral beauty of it all, sank deep in Louis' soul, now become as one with nature's mood. He wandered from the camp, wishing to be alone, where he might be himself, solitary, in nature's deep, and commune with venerable immensities that gave forth a voice of haunting stillness which seemed to murmur and at times to chant of an unseen, age-long, imminent, eternal power, which Louis coupled as one with a gentle sensuous, alluring power to whose moving song of enchantment he had trembled in response, within a bygone springtime in the open.

The brief camp-life was much the usual thing. Game was scarce, but small speckled trout could be scooped up in quantity from a slow, deep rivulet in a nearby beaver meadow.

Came time to return. The trapper said he could lead them back by an easier way, but it meant a detour of thirty miles to Lyons Falls. They made the distance in three days. They had been away ten days all told: and Louis was exultant that he had made as good a showing as the farm-boy twins. * * *

All too soon came the hour to begin the journey homeward. Good-byes were said—some of them wistful.

At Albany, Grandpa revealed a plan he had cherished in secret: They were to take the day-boat down the Hudson to New York. Louis was profuse in gratitude as he pre-figured coming wonders which he was to see with his very own eyes, and appraise with his own sensibilities. And so it was, as Louis passed almost directly from the sublimity of forest solitudes to the grandeur of the lower Hudson. As they passed West Point, Grandpa said that he had once taught French at the United States Military Academy, and that his pleasure there had been to swim the Hudson, across and back every morning before breakfast. Grandpa's stock immediately jumped many points, for Louis held prowess in high honor. As they passed the Palisades Louis was astounded as Grandpa explained their nature—huge basalt crystals standing on end. The life on the river all the way down had greatly entertained him; now he came in sight of greater shipping and entered an immense floating activity. Of New York Louis saw but little; and when Grandpa said it was here they landed when he with his family came from Geneva, Louis took the information deafly, not even inquiring when and why they had moved to Boston. Grandpa felt the hurt of this indifference. Here was this boy, his own cherished grandson, whose fourteen living years had been filled to overflow with vivid episodes, with active thoughts, with dreams, mysteries, prophetic intuitions and rude industrious practicalities, all commingled; here was this boy, ignorant, grossly innocent and careless of the vicissitudes and follies of a seething human world. He shuddered momentarily at the chasm that lay between them. For Grandpa all too well knew the profound significance of a wholly truthful story of any human life, told continuously, without a break, from cradle to old age; could it be known and recorded of any other than one's self. He knew that the key to the mystery of human destiny and fate lay wrapped and lost within these lived but unrecorded stories. He knew also that Louis was now paying in ignorance the penalty of a sheltered life. Then he told Louis another secret: They were to leave on a Fall River boat and traverse the length of Long Island Sound. Thus, Louis, in renewed joy and ecstasy made his first long trip on the salted sea. Then duly came Boston, Wakefield and the romantic journey's end. * * *

Louis still had time to brush up rapidly for the high school examinations. He had chosen the English High rather than the Latin High. He was accustomed to thinking and acting for himself, seldom asking advice. His thoughts in mass were directed ever toward his chosen career; and he believed that the study of Latin would be a waste of time for him: the time element was present always as a concomitant of his ambitions. He wished always to advance in the shortest time compatible with sure results. He had no objection to Latin as such, but believed its study suitable only to those who might have use for it in after-life. He had a keen gift for separating out what he deemed essential for himself.

On September third, his birthday, he received a letter from Utica, filled with delicate sentiments, encourag-

ing phrases, and concluding with an assurance that the writer would be with him in spirit through his high school days.

The English and Latin High Schools, in those days, were housed in a single building, rather old and dingy, on the south side of Bedford Street; a partition wall separating them, a single roof covering them. The street front was of granite, the side walls of brick. There were brick-paved yards for the recess half-hour with overflow to the street and a nearby bakery. It was a barn-like, repellant structure fronting on a lane as narrow as the prevailing New England mind of its day.

Louis passed the examinations and his name was entered in the year book 1870-71.

He was among those—about forty in all—assigned to a room on the second floor, presided over by a "master" named Moses Woolson. This room was dingy rather than gloomy. The individual desks were in rows facing north, the light came from windows in the west and south walls. The master's platform and desk were at the west wall; on the opposite wall was a long blackboard. The entrance door was at the north, and in the southwest corner were two large glass-paneled cabinets, one containing a collection of minerals, the other carefully prepared specimens of wood from all parts of the world.

The new class was assembled and seated by a monitor, while the master sat at his desk picking his right ear. Louis felt as one entering upon a new adventure, the outcome of which he could not forecast, but surmised would be momentous.

Seated at last, Louis glanced at the master, whose appearance and make-up suggested, in a measure, a farmer of the hardy, spare, weather-beaten, penurious, successful type—apparently a man of forty or under. When silence had settled over the mob, the master rose and began an harangue to his raw recruits; indeed he plunged into it without a word of welcome. He was a man above medium height, very scant beard, shocky hair, his movements were panther-like, his features, in action, were set as with authority and pugnacity, like those of a first mate taking on a fresh crew.

He was tense, and did not swagger—a man of passion. He said, in substance: Boys, you don't know me, but you soon will. The discipline here will be rigid. You have come here to learn and I'll see that you do. I will not only do my share but I will make you do yours. You are here under my care; no other man shall interfere with you. I rule here—I am master here—as you will soon discover. You are here as wards in my charge; I accept that charge as sacred; I accept the responsibility involved as a high, exacting duty I owe to myself and equally to you. I will give to you all that I have; you shall give to me all that you have. But mark you:—The first rule of discipline shall be SILENCE. Not a desk-top shall be raised, not a book touched, no shuffling of feet, no whispering, no sloppy movements, no rustling. I do not use the rod, I believe it the instrument of barbarous minds and weak wills, but I will shake the daylight out of any boy who transgresses, after one warning. The second rule shall be STRICT ATTENTION: You are here to *learn*, to *think*, to *concentrate* on the matter in hand, to hold your minds steady. The third rule shall cover ALERTNESS. You shall be awake all the time—body and brain, you shall cultivate promptness, speed, nimbleness, dexterity of mind. The fourth rule: you shall learn to LISTEN: to *listen* in *silence* with the *whole* mind, not part of it, to listen with your *whole heart*, not part of it, for sound listening is a basis for sound thinking, sympathetic listening is a basis for sympathetic, worth-while thinking, accurate listening is a basis of accurate thinking. Finally you are to learn to OBSERVE, and to REFLECT, to DISCRIMINATE. But this subject is of such high importance, so much above your present understanding, that I will not comment upon it now, it is not to be approached without due preparation. I shall not start you with a jerk, but tighten the lines bit by bit until I have you firmly in hand at the most spirited pace you can go. As he said this last saying, a dangerous smile went back and forth over his grim set face. As to the rest, he outlined the curriculum and his plan of procedure for the coming school year. He stressed matters of hygiene; and stated that a raised hand would always have attention. Lessons were then marked off in the various books—all were to be "home lessons" and the class was dismissed for the day.

Louis was amazed, thunder-struck, dumb-founded, over-joyed! He had caught and weighed every word as it fell from the lips of the master, to each thrilling word he had vibrated in open-eyed, amazed response. He knew now that through the years his thoughts, his emotions, his dreams, his feelings, his romances, his visions, had been formless and chaotic; now in this man's utterances, they were voiced in explosive condensation, in a flash they became defined, living, real. A pathway had been shown him, a wholly novel plan revealed that he grasped as a banner in his hand, as homeward bound he cried within, *At last a Man!*

Louis felt the hour of freedom was at hand. He saw, with inward glowing, that true freedom could come only through discipline of power, and he translated the master's word of discipline into its true intent:—*Self Discipline of self power.* His eager life was to condense now in a focusing of powers: what had the words meant:—"silence," "attention," "promptness," "speed," "accurate," "observe," "reflect," "discriminate," but powers of his own, obscurely mingled, uncoördinated, and, thus far, vain to create. Now, in the master's plan, which he saw as a ground plan, he beheld that for which, in the darkness of broad

daylight, he had yearned so desperately in vain; that for which, as it were with empty, outstretched hands, he had grasped, vaguely groping; as one seeing through a film, that for which he had hungered with an aching heart as empty as his hands. He had not known, surely, what it was he wished to find; but when the master breathed the words that Louis felt to be inspired: "You are here as wards in my charge; I accept that charge as sacred; I accept the responsibility involved as a high exacting duty I owe to myself and equally to you. I will give to you all that I have, you shall give me all that you have"—a veil was parted, as it were by magic, and behold! there stood forth not alone a man but a TEACHER of the young.

On board the train for Wakefield, Louis took account of himself; he viewed the long, loop-like journey he had but recently completed, still fresh and free in memory's hold. He had gathered in, as though he had flung and drawn a huge lassoo, the Berkshires, the Mohawk and its valley, Little Falls, the Black River, the Moose River, the primeval forest, and the Falls, the Hudson, the Catskills, and the Palisades, New York Harbor, Long Island Sound; he had voyaged by rail, by river, and by sea. All these things, these acts, with their inspiring thoughts and emotions and reveries he had drawn into himself and shaped as one single imposing drama, ushering in a new and greater life. Or, in a sense reversed, his "child-domain," holding, within the encircling woods, his ravine, his rivulet, his dam, his lovely marsh, his great green field, his tall, beauteous, slender elm; land of his delight, paradise of his earth-love, sequestered temple of his nature-worship, sanctuary of his visions and his dreams, had seemed at first, and hopefully, to extend itself progressively into a larger world as far as Newburyport and Boston, there, however, to stop, to remain fixed and bound up for seven long years, held as by a sinister unseen dam, the larger, urgently growing Louis, held also back within it, impatient, repressed, confined, dreaming of power, storing up ambition, searching for what lies behind the face of things, agitated and at times morose, malignant:—when of a sudden the dam gives way, the child-domain so far enlarged, rushes forth, spreading over the earth, carrying with it the invisible living presence of Louis' ardent soul, pouring its power of giving and receiving far and wide over land and sea, encompassing mountains and broad valleys, great rivers, turbulent waterfalls, a solemn boundless forest enfolding a lustrous lake, and again a noble river mountain-banked, an amazing harbor, and the great salt waves of the sea itself.

Thus were the boundaries extended; thus were the power and splendor of Mother Earth revealed in part; thus was provided deep and sound foundation for the masterful free spirit, striding in power, in the open, as the genius of the race of purblind, groping, striving, ever hoping, ever dreaming, illusioned mankind.

And thus it seemed to Louis that he was becoming stronger and surer of himself. Reverting to the words of the master, he dared affirm that this very power was within him, as a ward in his charge; that he must accept that charge as sacred; that he must accept the responsibility involved as a high exacting duty he owed to himself and equally to it; that he must give to it his all, to insure that it might give to him its all.

And Louis now saw clearly and in wonder, that a whim of his Grandpa, not the Rice Grammar School, had prepared him to meet Moses Woolson on fair terms. With confident assurance he awaited the beginning of what he foresaw was to be a long and arduous disciplinary training, which he knew he needed, and now welcomed.

That evening he told Grandpa what he thought of Moses Woolson and his plan; and Grandpa, with inward seeing eyes, smiled indulgence at his grandson seated on his knee, one hand about his neck, as he mused aloud: "My dear child, allowing for the rosy mist of romance through which an adolescent like yourself sees all things glorified, I will say that in the whole wide world it is true there may be found a few such men as you portray; but as a venerable and prudent Grandpa I shall reserve the right to wait awhile that we may see how the ideal and the real agree. But you go at it just the same, regardless of what may be passing in the back of my bald head." And Louis laughed, and kissed and hugged his Grandpa, and settled to his lessons, as grandma knitted by the student lamp, as uncle Julius thrummed away on a helpless guitar and sang the melancholy sentimental ditties of the day, and as Grandpa, in slippers, gazed with incredulity at a boy on the floor oblivious of them all.

As it has but little import in this story, we shall pass over the breaking-in period of Moses Woolson's class, and begin an exposition of Moses Woolson's plan and method, and Louis' responses thereto at that period the master himself had forecast as "when I have you firmly in hand at the most spirited pace you can go." Suffice it to say that with great skill in intensive training he had brought them to this point within three months.

The ground work of his plan was set forth in his opening address, and is now to be revealed in its workings in detail.

The studies on which Louis set the highest value were Algebra, Geometry, English Literature, Botany, Mineralogy and French language. All these subjects were to him revelations. Algebra had startled him; for, through its portal he entered an unsuspected world of symbols. To him the symbol x flashed at once as a key to the unknown but ascertainable. Standing alone, he viewed this x in surprise as a mystic spirit

in a land of enchantment, opening vistas so deep he could not see the end, and his vivid imagination saw at once that this *x*, expanded in its latent power, might prove the key to turn a lock in a door within a wall which shut out the truth he was seeking—the truth which might dissolve for him the mystery that lay behind appearances. For this *x*, he saw, was manipulated by means of things known.

Thus he saw far ahead; looking toward the time when he would be mature. Geometry delighted him because of its nicety, its exactitude of relationships, its weird surprises—all like fairy tales, fairy tales which could be proved, and then you said: Q.E.D. He began to see what was meant by a theorem, a postulate, a problem, and that *proof* was a reasoned process based on certain facts or assertions. It was well for him, at the time, that he did not perceive the Euclidian *rigidity*, in the sense that he had noted the fluency of Algebra. As to Botany, had he not always seen trees and shrubs and vines and flowers of the field, the orchard and the garden?

Now he was learning their true story, their most secret intimacies, and the organization of their world. He loved them all the more for this. Mineralogy was new and revealing, the common stones had begun as it were, to talk to him in their own words. Concerning French he was ardent, for he had France in view. English literature opened to him the great world of words, of ordered speech, the marvelous vehicle whereby were conveyed every human thought and feeling from mind to mind, from heart to heart, from soul to soul, from imagination to imagination, from thought to thought; and to his ever widening view, it soon arose before him as a vast treasure house wherein was stored, in huge accumulation, a record of the thoughts, the deeds, the hopes, the joys, the sorrows, and the triumphs of mankind.

Moses Woolson was not a deep thinker, nor was Moses Woolson erudite or scholarly, or polished in manners, or sedate. Rather was he a blend of wild man and of poet. But of a surety he had the art of teaching at his finger tips and his plan of procedure was scientific to a degree, so far beyond the pedagogic attainments of his day that he stood unique, and was cordially hated by his craft as lambs might fear and hate a wolf. Today men would speak of such a man as a "human dynamo," a man ninety-nine per cent "efficient." His one weakness was a temper he all too often let escape him, but his high strung, nervous make-up may be averred in part extenuation, for this very make-up was the source of his accomplishment and power: He surely gave in abundance, with overflowing hands, all that he had of the best to give.

His plan of procedure was simple in idea, and therefore possible of high elaboration in the steady course of its unfolding into action and results. For convenience it may be divided into three daily phases seemingly consecutive, but really interblended; first came severe memory drill, particularly in geometry, algebra, French grammar and in exact English: This work first done at home, and tested out next day in the school room. Second, (first, next day) a period of recitation in which memory discipline and every aspect of alertness were carried at high tension. At the end of this period came the customary half-hour recess for fresh air and easing up. After recess came nature study with open book. Chief among them Gray's "School and Field Book of Botany"—Louis' playground; then came a closing lecture by the Master.

Thus it may be said, there was a period of high tension, followed by a period of reduced tension, and this in turn by a closing period of semi or complete relaxation, as the master reeled off in easy, entertaining talk, one of his delightful lectures. It was in the nature studies, and in these closing lectures, particularly those in which he dwelt upon the great out of doors, and upon the glories of English literature that the deep enthusiasms of the man's nature came forth undisguised and unrestrained, rising often to the heights of impassioned eloquence, and beauteous awakening imagery. These lectures, or rather, informal talks covered a wide range of subjects, most of them lying beyond the boundaries of the school curriculum.

Thus, in a sense, Moses Woolson's school room partook of the nature of a university—quite impressively so when Professor Asa Gray of Harvard came occasionally to talk botany to the boys. He did this out of regard for Moses Woolson's love of the science. The unfailing peroration of these lectures—every one of them, was an exhortation in favor of "Women's Rights," as the movement was called at the time; for Moses Woolson was a sincere and ardent champion of womankind. On this topic he spoke in true nobility of spirit.

But the talks that gripped Louis the hardest were those on English literature. Here the master was completely at his ease. Here, indeed, he revelled, as it were, in the careful analysis and lucid exposition of every phase of his subject, copious in quotation, delightfully critical in taking apart a passage, a single line, explaining the value of each word in respect of action, rhythm, color, quality, texture, fitness, then putting these elements together in a renewed recital of the passage which now became a living moving utterance. Impartial in judgment, fertile in illustration and expedient, clear in statement, he opened to view a new world, a new land of enchantment.

One day, to Louis' amazement, he announced that the best existing history of English literature was written by a Frenchman, one Hyppolite Taine by name. This phenomenon he explained by stating that the fine French mind possessed a quality and power of detachment unknown to the English; that Monsieur Taine further possessed that spiritual aspect of sympathy, that

vision, which enabled him to view, to enter freely and to comprehend a work of art regardless yet regardful of its origin in time or place; and he rounded an antithesis of French and English culture in such wise as to arouse Louis' keenest attention, for the word *culture,* had hitherto possessed no significance for him, it was merely a word! Now his thoughts, his whole being floated o'er the sea to distant France, whereupon he arose from his seat and asked Moses Woolson what culture really meant, and was told it signified the genius of a people, of a race. And what was meant by the *genius* of a people? It signified their innate qualities and powers of heart and mind; that therefore their culture was their own expression of their inmost selves, as individuals, as a people, as a race. Louis was magnificently bewildered by this high concentration. He seemed to be in a flood of light which hid everything from view; he made some sheepish rejoinder, whereupon Moses Woolson saw his own mistake.

He came down from his high perch to which he had climbed unwittingly, for it was dead against his theory and practice to talk above the heads of his boys. He thereupon diluted the prior statement with a simply worded illustration, and Louis was glad to find his own feet still on the ground. Then Louis put the two aspects of the statement side by side again, and "culture" became for him a living word—a sheer veil through which, at first, he could but dimly see, but living word and sheer living veil had come from without to abide with him. It seemed indeed as though Moses Woolson had passed on to him a wand of enchantment which he must learn to use to unveil the face of things. Thus Louis dreamed.

By the end of the school year Moses Woolson through genius as a teacher, had turned a crudely promising boy into, so to speak, a mental athlete. He had brought order out of disorder, definition out of what was vague, superb alertness out of mere boyish ardor; had nurtured and concentrated all that was best in the boy; had made him consciously courageous and independent; had focussed his powers of thought, feeling and action, had confirmed Louis' love of the great out of doors, as a source of inspiration; and had climaxed all by parting a great veil which opened to the view of this same boy, the wonderland of Poetry.

Thus with great skill he made of Louis a compacted personality, ready to act on his own initiative, in an intelligent purposeful way. Louis had the same capacity to absorb, and to value discipline, that Moses Woolson had to impart it, and Louis was not a brilliant or showy scholar. He stood well up in his class and that was enough. His purpose was not to give out, but to receive, to acquire. He was adept in the art of listening and was therefore rather silent of mood. His object was to get every ounce of treasure out of Moses Woolson. And yet for Moses Woolson, the master and the man, he felt neither love nor affection, and it is quite likely that the master felt much the same toward him. What he felt toward the man was a vast admiration, he felt the power and the vigor of his intense and prodigal personality. It is scarcely likely that the master really knew, to the full extent, what he was doing for this boy, but Louis knew it; and there came gradually over him a cumulative reciprocity which, at the end, when he had fully realized the nature of the gift, burst forth into a sense of obligation and of gratitude so heartfelt, so profound, that it has remained with him in constancy throughout the years. There may have been teachers and teachers, but for Louis Sullivan there was and could be only one. And now, in all too feeble utterance he pleads this token, remembrance, to the memory of that ONE long since passed on.

* * *

Meanwhile a cloud no bigger than a man's hand arose into the clear blue above the horizon of Henri List's placid life. Early in 1871 Anna List, his wife, his prop, his anchor, his life's mainstay, was taken with her first and last illness. Louis was forbidden her room. All was quiet; furtive comings and goings; whispered anxious words. The cloud arose, darkened the world and passed on. One morning, it was told, that he, Louis, might see her. He went directly to her room, opened the door, and entered. The white shades were down and all was light within. On the bed he saw extended an object fully covered by a sheet. He advanced, drew aside the sheet, rashly pressed his lips upon the cold forehead, drew back as though stung.

Standing erect he gazed steadfastly down upon rigid features that seemed of unearthly ivory.

Grandmamma had vanished!

What signified this cold menace he now scanned? This stranger in the house—whence Grandmamma had gone forever?

What meant this effigy, this ivory simulacrum that had come here in her stead?

It could not see, it could not hear, it could not feel, it could not move, it could not speak, it could not love!

Grandmamma had vanished!

She had passed on with a great cloud that had cast its shadow.

And here, now before him lay a counterfeit, where once she was.

An object, a nothing, a something and a nothing, which Louis could not think or name; an ivory mask which repelled, which instantly he rejected, as a ghastly intrusion.

And they had said that he would see his Grandmamma!

Ah! then, was this petrified illusion his Grandmamma?

They lied!

His true Grandmamma was in his heart and would remain there till his own end should come. Whatever this object before him might be, it was not Gran'ma!

His Grandmamma had vanished!

He replaced the shroud. Dry-eyed, and as one filled with a cold light, he left the room.

Never before had Louis seen what Death, the cloud no bigger than a man's hand, leaves behind it as it passes overhead and vanishes.

* * *

An upright white marble slab, in the cemetery, at the point of the promontory that juts into Lake Quannapowitt, says to the stranger wandering therein, that ANNA, wife of Henri List, died 2 April, 1871, aged 66 years.

In this laconic statement the cynic hand of Henri List is clearly seen, even as at the funeral service in the "spare room" he was prostrate in an overwhelming flood of hysteria and tears, even as Louis stood by, gazing at him in wonder that a strong man could be so weak; even as Louis, cold and harshly irritated by the Baptist minister, whose sensuous words in praise of human bloodshed, he cursed. Driven to desperation by the whining quartet, he rushed into the open, sat under a tree and damned them all to perdition. Why had he been dragged into this gross orgy of grief? Could he not be left alone and in peace, to revere in memory that grandmamma who still lived on within his heart? The others with their noisy and their mercenary grief would soon forget. He, never. As thus he raged, a peach tree in full bloom in the garden caught his eye. He hastened to it as to a friend, in dire need. Its joyous presence in the garden gave him courage, for spring again was singing her great song. The air was vocal in a choir of resurrection. Here indeed was resurrection and the life. It seemed to him not in the least incongruous that his beloved had vanished into that great life whence she came—whence he had come; and that as Life was within him, so was his beloved within him as life within a life to be treasured evermore.

Thus near the peach tree in full bloom, Louis' tortured mind was stilled. He accepted death as an evanishment, he accepted Life as the power of powers. It seemed, indeed, as standing near his friend, gazing fondly round about and upward through the invisible firmament, that this great power, Life, in gesture and in utterance through the song of spring, had set its glowing rainbow in the passing cloud as a token of a covenant that the pure of eye might see. And indeed it seemed to him as quite lucid that the cloud with the glowing rainbow in its heart might well stand forever as a symbol of a token of a covenant between Life, and Man's proud spirit, and the Earth. Thus Louis dreamed. And it seemed as though a small voice coming from afar, said, "If one must dream let the dream be one of happiness."

* * *

For the second time the house of Henri List had collapsed and gone down. This time in fragments. Soon the farm was sold. Julia, she of flaming hair, bewitching fairy tales, and temper of Iseult, cook and companion for nine long years, vanished in turn; Julius, the son, now twenty-five, offered a place, "in Philadelphia," went there; his father followed.

Louis found welcome and shelter with the next door neighbors, the John A. Tompsons, whose son George for years had been his playmate. And the earth resumed its revolution about its own private axis as before; day following night as usual. Daily, George Tompson went to "Tech" to pursue his studies in railway engineering. Daily, Louis paid his renewed respects to Moses Woolson. Daily, John T. Tompson returned from Boston at an exact hour, removed his hat, walked to a glass cabinet, took exactly one stiff swig of Bourbon straight, smacked his lips, twinkled his eyes, sank into an easy chair which had remained in the same place for exactly how many years no one knows, dozed off for exactly ten minutes, arose, stretched his short muscular body, smiled widely, displaying false teeth, dyed-black side whiskers and moustache, a fine high forehead and dark fine eyes with as merry a twinkle as one could wish; then he went forth to see if each cultivated tree and shrub and bush and vine were exactly where they were in the morning. This man, gifted with extraordinary deftness of hand and a high-spirited intelligence, became a wonder and an inspiration to Louis, who spent the following two years in this charming household where epicureanism prevailed.

That spring and summer Louis botanized and mineralized with incessant ardor, and he saw what it signified that each thing should have a name, and what order and classification meant in the way of organized intelligence, and increased power of manipulation of things and thoughts. His insight into the relationship of function and structure deepened rapidly. A thousand things now began to cohere and arrange into groups which hitherto had seemed disparate and wide apart. To be sure Moses Woolson was the impelling cause and it was up to Louis to do the work and to search and find and see these things objectively and clearly for himself. Thus logical connections began to form a plexus in his growing mind, beside which also upgrew a sense of equal logic and order in action. Now, John A. Tompson had this faculty of order and delicate precision in so marked a degree that Louis kept a close eye on his doings. In the fall Louis returned to the English High School and entered the Second Class under a sub-master named Hale. Mr. Hale was a scholar and a gentleman, a shining light of conscientious, conventional, virtuous routine.

With that clear and ruthless faculty, which boys possess, of spotting the essentials of their elders, Louis at the first session so sized up Hale; and dismay and despair swept through him in an awful wave of depression; it seemed as though the light of life had gone out. What was this tallow dip to the hot sun of Woolson. What could this mannikin accomplish? What could this respectable and approved lay figure do for one who had been trained intensively for a year by Moses Woolson? Let us therefore quickly draw the veil; and forget.

At the end of this school year, George Tompson asked Louis why he did not try for "Tech." And Louis replied that he supposed that he must first finish "High." "Nonsense," said George, "You can pass easily." And thus encouraged, Louis passed easily.

It should be mentioned that at the time of the great Chicago fire, Louis received prompt word that the family were safe and sound beyond the reach of its fearsome ravages. And also that Louis' faithful correspondence with those far away must not be overlooked.

Thus he now felt safe and strong to face in "Tech" his first adventure, as prelude to an architectural career.

(*To be continued*)

The Restoration of the Parthenon

By STANLEY CASSON[1]

The restoration of all ancient buildings leads inevitably to controversy. Doubt is invariably cast either upon the competency of the restorers or upon the possibility of reproducing the original appearance of the building to be restored. The criticism comes either from archæologists who mistrust the capacity of the restorers to understand the technique of the original builders or from sentimentalists who prefer ruined buildings to remain in the form in which we have been accustomed to see them for many centuries.

Proposals to restore the Parthenon are not new. A controversy of the most acute kind raged in France in 1905 when an extensive restoration was planned. Opposition was for the most part sentimental. The Parthenon should be left, said opponents of the scheme, in the state in which it has been. It is a magnificent ruin and should be left as such. To restore or reconstruct it would shatter our illusions. Complete reconstruction is impossible and partial reconstruction would be inadequate.

In the spring of this year the Council of the archæological department of the Greek Government considered and subsequently approved a scheme for the restoration of the Parthenon, so that whatever criticism was raised and is still levelled against the scheme will have to accommodate itself to the *fait accompli*. In fact, however, the scheme is now held up for want of money and it is extremely unlikely that much will be done in the matter for the next year, at least.

The scheme proposed was simple and not ambitious. All parts of the building which are no longer in position but which can be replaced and incorporated have been assembled and a commencement has been made at the restoration, with these intact parts and such minor additions as they need, of those parts of the temple of which most can be reconstructed from the parts so assembled.

The bulk of the damage to the Parthenon was, of course, caused in 1687 when Athens was besieged by the Venetians under Morosini. On that occasion the majority of the columns on the north and south sides of the building were blown outward by the explosion of the powder which the Turkish defenders had stored in the *cella* of the temple. The drums of most of these columns lie still on the Acropolis, though the greater part of the architrave which they supported is in fragments and the roof has almost completely vanished.

The general plan of the restoration was in the hands of M. Balanos, who was to be assisted by a skilled Russian architect. From the progress of the first part of the restoration the probability of success in the remainder would be decided. The plan of restoration for this year comprised only the reerection in their original position of three columns on the north side, namely, the seventh, eighth and ninth (counting from the west end). The component parts of these three columns are for the most part in existence, and the bulk of the architrave which they support is extant. The work of erection has, in fact, already begun, and the necessary scaffolding has been erected. A few column drums are so badly cracked by their fall as to be unsuitable for incorporation and they will be replaced by drums of grey limestone. Damaged edges of other drums will be patched with the same grey stone. The remainder of this row of columns will be completed if the stability and general appearance of the three reerected columns are considered satisfactory. This reerection will involve the rebuilding of five more columns only, since the three columns at the east end

[1] Fellow of New College, Oxford, University Lecturer in Classical Archæology and sometime Assistant Director of the British School at Athens.

THE PROPYLAEA. COLUMNS OF THE EAST FRONT BEFORE RESTORATION. FOUR OF THE CAPITALS AND MOST OF THE SUPERIMPOSED GABLE HAVE BEEN RESTORED

(the fifteenth, sixteenth and seventeenth) are not only intact but the best preserved in every way in the building. Thus of the total of eight columns which will require reerection three are already surrounded by the necessary scaffolding. It should be noted, however, that the difficulty of dealing with these three is that one of them (the ninth) is itself a reerection, carried out in the middle of the last century. But it is re-erected in a clumsy manner and will have to be pulled down and put up again before it is strong enough to support the architrave which will ultimately be placed upon it. Of the remaining five, two (the eleventh and twelfth) stand to a height of seven and eight drums respectively while the others have fallen completely, except for the basal drum.

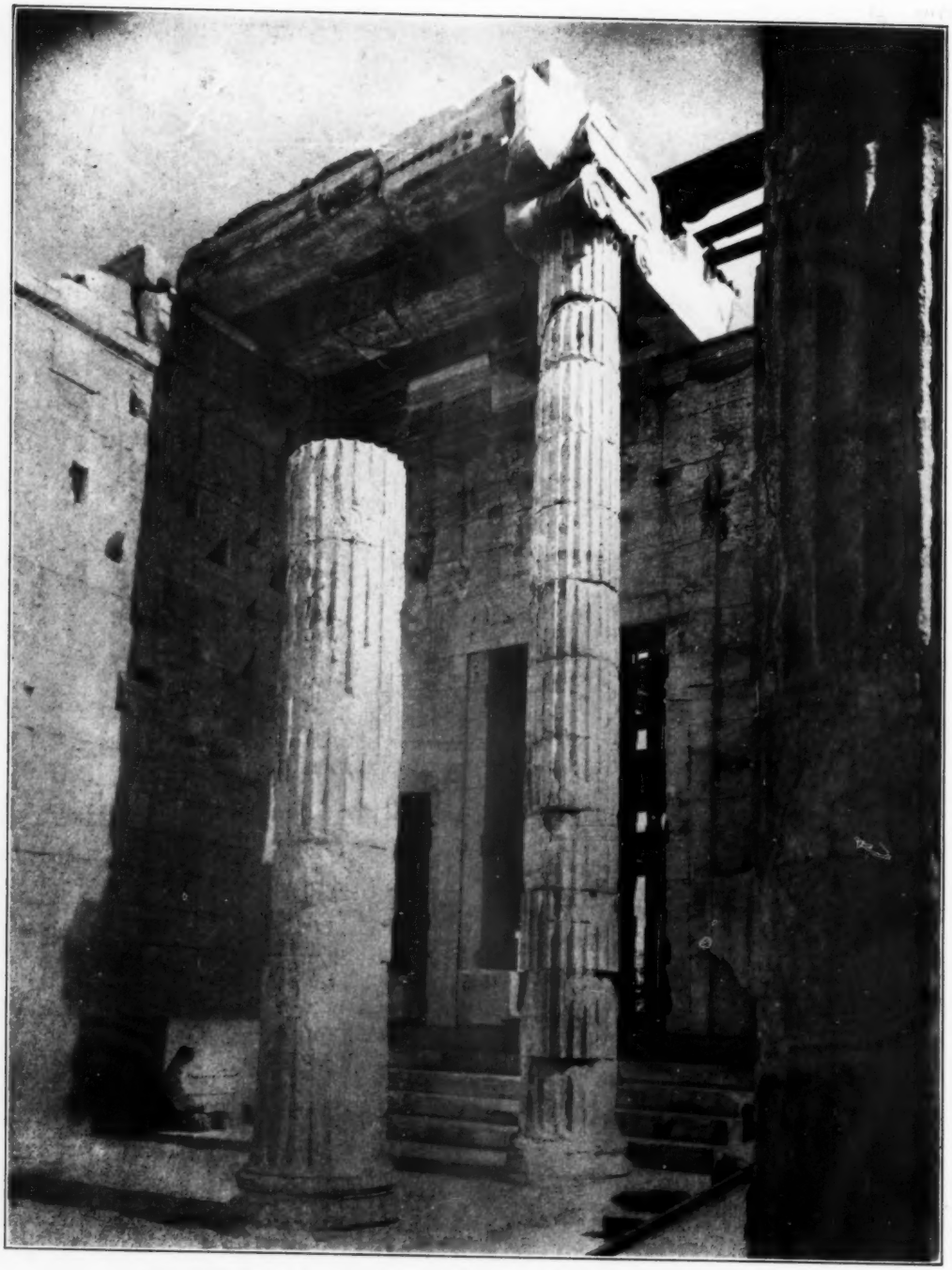
Of the architrave and triglyphs enough remains to restore the complete alignment, though fragments only of the cornice are extant.

The temple as so restored will thus show its peripteral colonnade on three of its four sides with a total of thirty-one columns standing. The south side does not at present enter into the scheme of restoration. Of the total of fifteen columns on this side (the two end columns have been counted in as belonging to the east and west ends) a larger number has suffered serious damage than on the north side. The force of the explosion seems to have blown more columns down and, in addition, to have done so with more force, so that the scattered drums are more damaged than on the north side. At present the reconstruction of this side is not entertained in the general scheme, and it will not be considered until the results of the preliminary restoration of the three columns on the north have been studied.

The plan of restoration or reconstruction is thus at present limited. Only one side is to be dealt with and only three columns of this side. In view of the definite plan thus proposed it is interesting to consider the merits of the various arguments brought forward in opposition to the scheme as a whole.

First of all there is the sentimental argument already referred to. Why should the building be touched at all? we are asked. It has stood so for many centuries, and we have been accustomed to a view of the Parthenon which shows it with the central columns of each side in ruins. What advantage is to be gained by a partial restoration?

This argument is largely based on untrue premises.

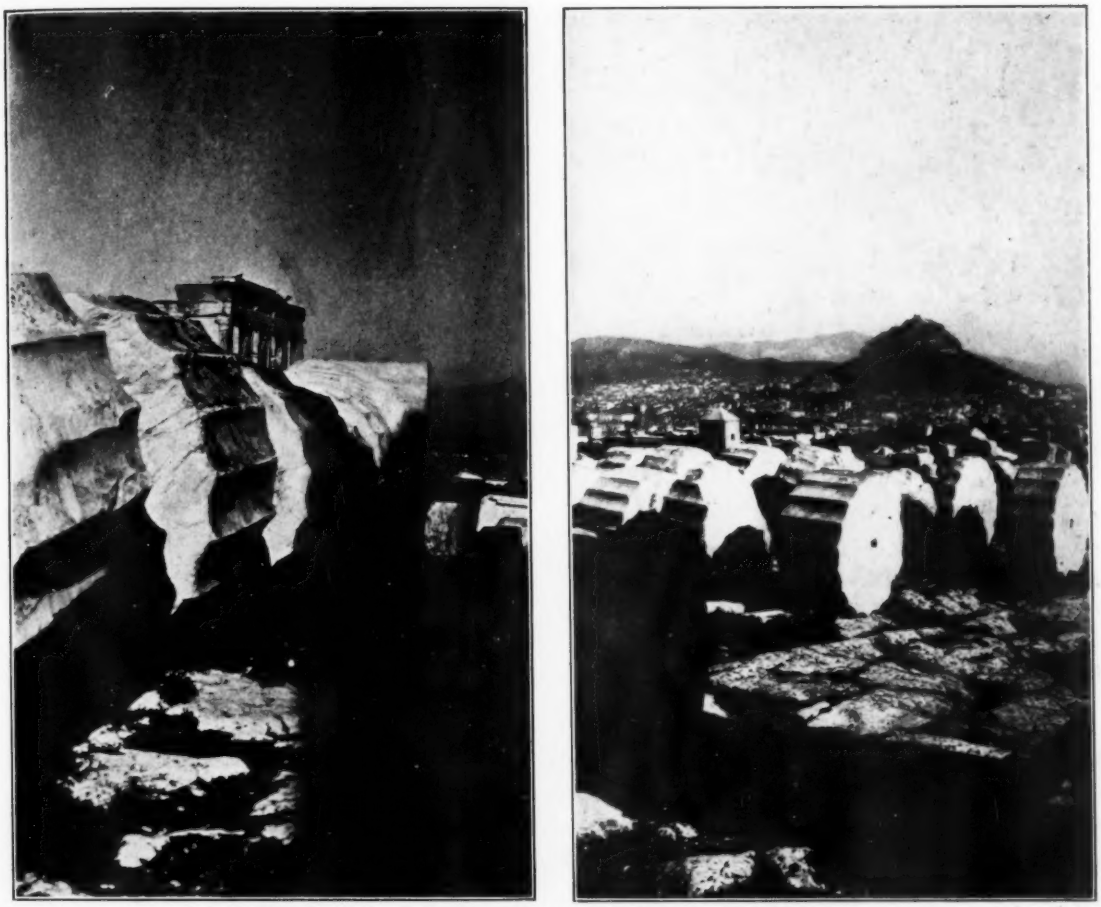


THE PROPYLAEA. INTERIOR SHOWING A RE-ERECTED IONIC COLUMN AND ROOF

THE PARTHENON. COLUMNS AT THE NORTH EAST CORNER. THESE ARE THE BEST PRESERVED COLUMNS IN THE BUILDING

THE ACROPOLIS FROM THE SOUTH WEST

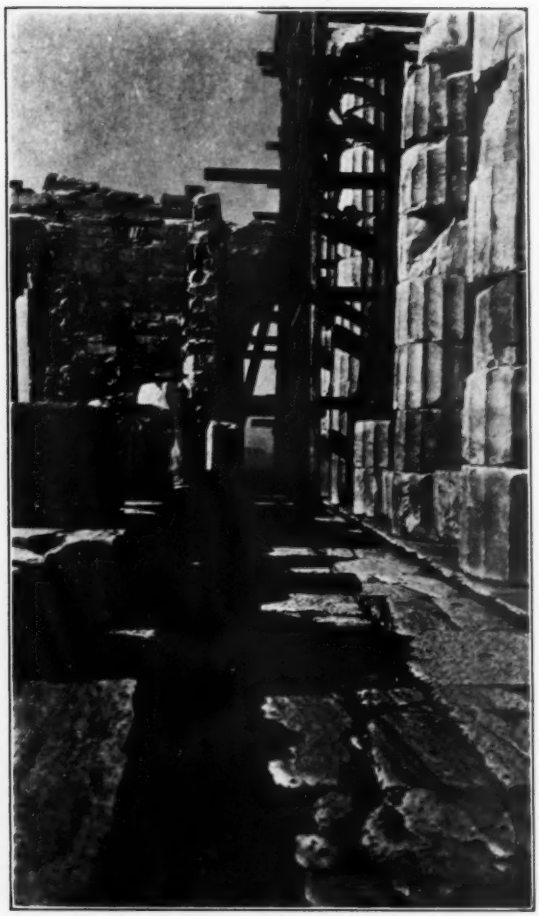
THE PARTHENON. THE COLUMNS AT THE EAST END



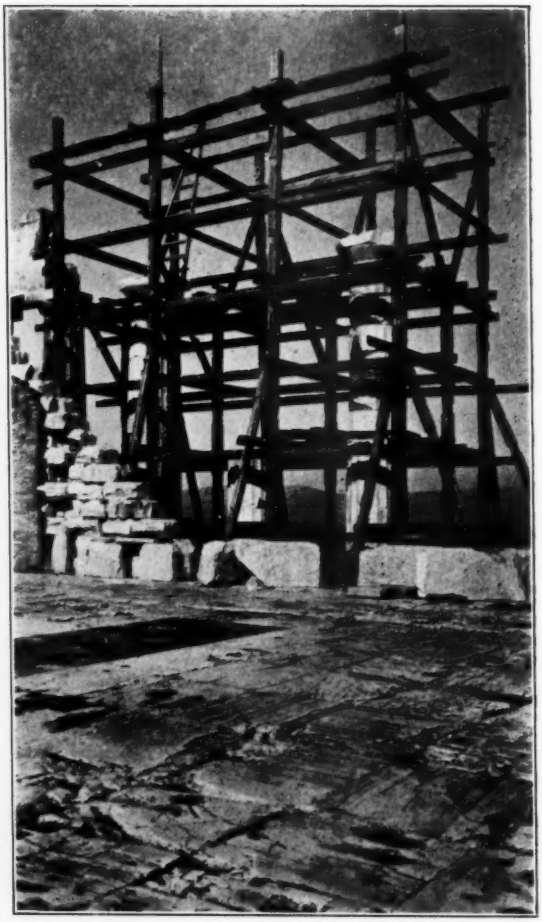
THE PARTHENON—DRUMS OF FALLEN COLUMNS ON THE NORTH SIDE

In the early days of Greek independence when Athens was still a Turkish town in appearance the Acropolis was covered with a mass of Turkish houses, bastions and walls. These were removed shortly after 1835 by the influence and agency of a group of European archæologists and architects, amongst whom Ross and Hanssen are the best known; and the general appearance of the citadel was, by a process of clearance, restored as far as possible to the appearance which it bore in the time of Pericles. The Parthenon was disengaged from its later accretions of Byzantine and Turkish date. The Erechtheium was cleared of the vast mass of surrounding and superincumbent Turkish domestic architecture and the Propylaea was cleared of the defensive walls and bastions in which it was enmeshed. The little temple of Athena Nike, or "Wingless Victory," which had been pulled down in 1686 by the Turks and made into a defensive tower was, shortly after 1835, rebuilt from its fragments.

To say, therefore, that by restoring the Parthenon we are destroying the appearance of the Acropolis as it has been known to travellers and scholars for centuries is incorrect. The present state of the Acropolis dates only from 1835, while the Parthenon as we see it today is in a condition which has lasted only since 1687, for it was then that the side columns were blown out. Any sentiment, then, which regards the Acropolis as being desecrated is a false sentiment. If the clearance of 1835 and succeeding years, which restored the citadel as nearly as possible to its fifth century condition and transformed it from a mediæval to a Periclean ruin, was acclaimed almost universally as an improvement in its condition, surely a continuation of the same process can hardly be condemned. The Parthenon that emerges from this present restoration will not only resemble very closely the Parthenon of the days before the explosion of 1687 but will also recall the Periclean building in the same way as the removal of the mediæval buildings made it possible to form some idea of the Periclean Acropolis.



THE PARTHENON. NORTH SIDE SHOWING SCAFFOLDING OF THE COLUMNS TO BE REBUILT, TAKEN FROM THE INTERIOR OF THE CELLA

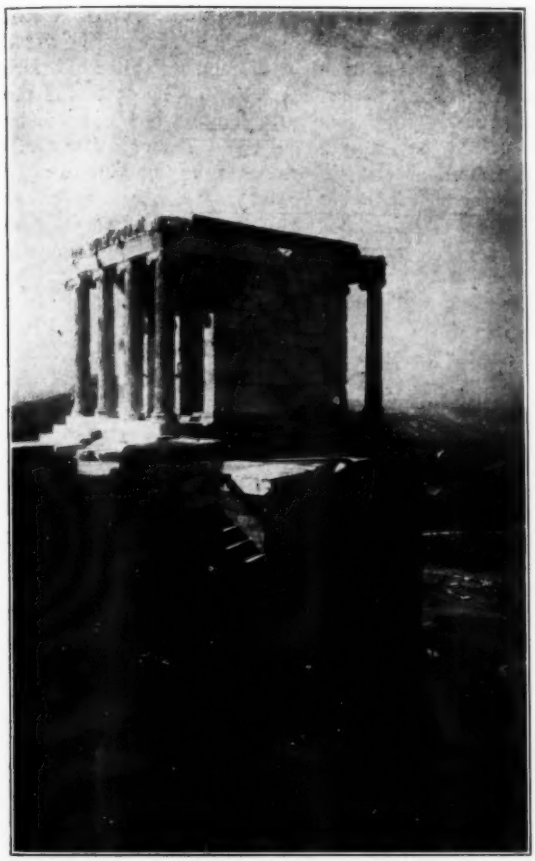


THE PARTHENON. NORTH SIDE SHOWING SCAFFOLDING BETWEEN THE CELLA WALL AND THE PERIPTERAL COLUMNS

Perhaps a more insistent argument against restoration is that which alleges that any restoration of column or architrave will necessitate the addition of large quantities of new parts, which, from their newness, will strike the eye unpleasantly and give so patchy an effect as to destroy the beauty of the building. This can best be answered by referring to buildings which have already been restored on the Acropolis itself and at other Greek sites. The most notable instances are the Propylaea, the Erechtheium and the Treasury of the Athenians at Delphi.

The Propylaea has been restored, but in no sense reerected, during the last twelve years, largely by the aid and advice of such distinguished architects as were resident in Athens. Of these Mr. Dinsmoor, an American, is one of the most prominent. Weak blocks of the architraves and of the gable have been partly restored and missing blocks, in some cases, wholly replaced by blocks of new Pentelic marble, accurately cut and fitted. Most visitors to the Acropolis do not realize that the Propylaea as it stands today is very largely restored indeed. Four of the column capitals on the east side are almost entirely new, while a large part of the roof of the same side and one of the Ionic columns in the central aisle have been reerected. No unwarranted restorations or improvements have been added and the present appearance of the building is vastly improved. Yet no protests have been heard and the work of restoration went on uncriticised and was generally approved.

Large additions have in the same way been made to the Erechtheium. Drums of the columns in the north porch are of new marble and the whole building is full of patches of new work. Yet the restorations



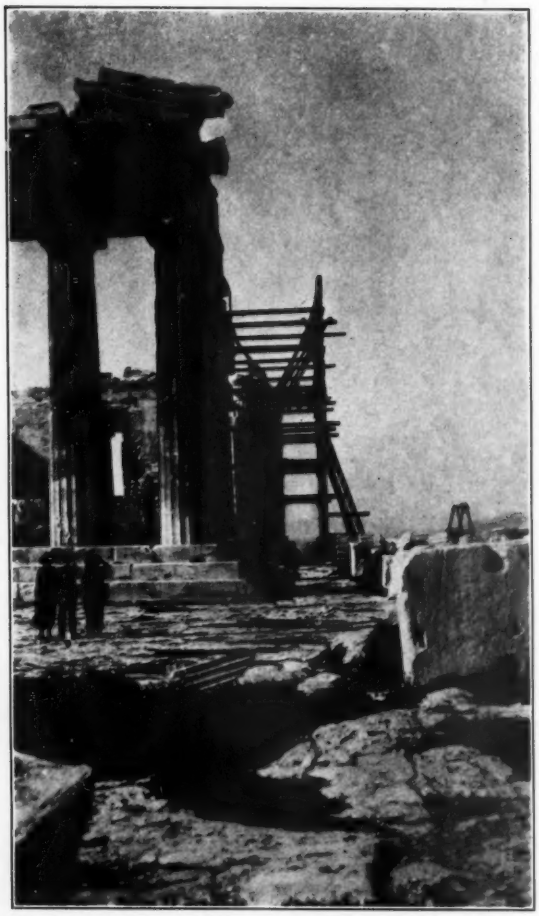
THE TEMPLE OF ATHENA NIKE (*left*)—THE PROPYLAEA. CAPITAL AND TOP OF RE-ERECTED IONIC COLUMN. (PHOTOGRAPH TAKEN WITH TELEPHOTO LENS)

are now sufficiently weathered for the white Pentelic marble to have taken on to a large extent the delicate oxidisation or patina which is one of the qualities of Pentelic marble; and the additions, in consequence, are not glaringly obvious. The inner Caryatid on the east side of the Caryatid porch is entirely new, the work of a German architect, Imhof, and yet it does not obtrude itself unduly on the eye.

The Treasury of the Athenians at Delphi is one of the triumphs of the art of restoration. The building is a small temple *in antis* in the Doric style, 9.75 metres in length and 6.68 in breadth. It was rebuilt from what was a veritable rubble-heap by the French architect Replat soon after 1894. Most of the blocks of the stylobate and steps, of the *cella* walls and gable, were assembled, but of the two Doric columns between the *antae* only one column-drum had survived. The walls of the *cella* were found to taper in thickness towards the top and each wall was of a different thickness. This naturally facilitated the process of reconstruction. The Metope sculptures were removed and placed in the museum, but weatherproof casts were put in their place. No trace of the pedimental sculptures was found. The building as restored and re-erected remains one of the beauties of Delphi and does more to recall the original condition of the shrine than any other of the less complete buildings which remain.

In view of these three examples of reerection and restoration it seems difficult to contend seriously that the same process, when applied to the Parthenon, would ruin its appearance.

The little temple, in the Ionic style, of Athena Nike affords a less cogent argument. It was reerected hastily and not in a very satisfactory manner. Its beauty is largely diminished by the absence of one complete side of the frieze which was removed by Lord Elgin before it was reerected and is now in the British Museum. Its place is taken by an inferior cast which is not weatherproof and which has, in consequence, gone a dark black color. Missing ends and corners of blocks



THE PARTHENON. NORTH EAST CORNER SHOWING SCAFFOLDING OF THE NEW RESTORATION, ON THE NORTH SIDE

are restored with odd material, in some cases even in red brick so that the effect is not pleasant. But the building could with advantage be pulled down and re-erected again sufficiently well to take its place with the Treasury of the Athenians and the other buildings which have been scientifically restored.

It is clear, then, that none of the arguments against restoration which have been dealt with above can be seriously considered as sufficient to dissuade the Greek Government from its present plan of restoration of the Parthenon.

There remains one argument which is more cogent. It is contended that while buildings like the Erechtheium or the Treasury of the Athenians afforded what are, on the whole, comparatively simple problems for the restorer, the Parthenon is a graver and more complicated subject. The extant column drums of the fallen columns are not properly sorted out and cannot be sorted into their proper positions without a vast number of alternative trial fittings which will involve an endless amount of work and experiment before even one column can be reerected. To do this in the case of the large total of columns which have to be so treated will consume all the money and time available for the work. To this it is only possible to reply that the architects who have charge of the work believe that they can establish the necessary fittings by preliminary measurement and are satisfied that no very extensive experimental work is necessary. Otherwise the work would not have been undertaken.

It seems a pity, however, that the funds available limit the restoration of missing column drums and other parts to the use of limestone instead of marble. This is a serious flaw in the scheme. Marble has been used in all the other restored buildings referred to and it seems unfortunate that the Parthenon, the noblest building of them all, should be patched with this unsightly stone instead of proper Pentelic marble. But until the restoration becomes an international affair we must, perforce, be content with what the present impoverished government can afford.

In all restoration the chief danger is the imagination of the restorer, which may lead him to add or improve where additions and improvements are unnecessary and undesirable. But this is a greater danger in Gothic and Mediæval buildings than in those of Classical Greece.

Greek architecture is composed of such simple elements that the restorer, provided he be conscientious, will find it difficult to go wrong. The only mistake that may be made in the case of the Parthenon is that the restorer may be tempted to add too much. So little of the architrave and its associated parts remains among the fallen fragments that the restorer may want to improve beyond his means. But the actual plan contemplated is, fortunately, limited. There is to be no attempt to replace the roof for the simple reason that its structure is not known. In the same way the interior columns of the inner shrine and the *cella* walls will be left unrestored.

As a matter of fact, there is not enough material to make a restoration possible. But to reerect the fallen columns seems quite within the limits both of the evidence and of the material. We are not faced with fundamental problems of design which, as in the case of the Mausoleum of Halicarnassus, is not known. The Parthenon was a Doric building of the utmost simplicity, with its main outlines both known and extant.

What is missing can be as clearly understood as the metre of a lost hexameter. What is difficult is the actual process of reconstruction. But if the architects in charge of this work are satisfied as to its possibility, we are not justified in challenging their decision.

Five Sketches

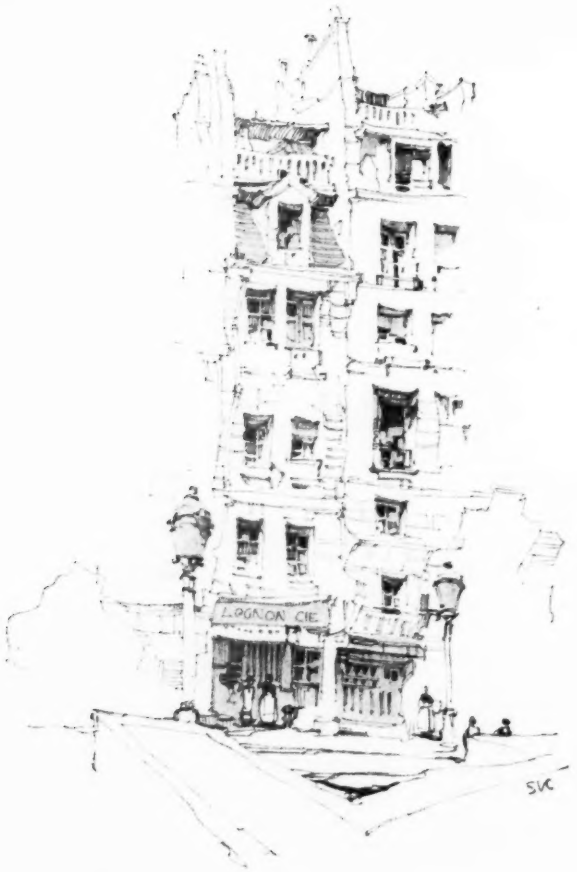
(Including frontispiece)

SAMUEL V. CHAMBERLAIN

A Street in Atrani

Samuel V. Chamberlain

Samuel V. Chamberlain



Samuel V. Chamberlain

Another Voyage in My Paper Boat

By IRVING K. POND

Trimming the Craft

Again I apologize for a seeming tardiness in delivering to my readers the cargo gathered on my most recent voyage to foreign lands in my paper boat. In order to make these voyages I must have my sails filled with favoring breezes blown in from the Octagon. With the return of the editor to his post a hurricane ensued and an avalanche of stuff, gathered in force from all quarters of the globe, was hurled at my defenseless head. It came from South America, South Africa, New South Wales, Canada, France, Belgium, Denmark, England, in staggering bulk, to supply material for my delectation. The pictorial elements are more interesting than sometimes they have been and demand my attention and generally favorable comment. Some I pass over in sadness and with a feeling of depression that their authors could not have risen higher above the commonplace—indeed that they could not have been a bit more unlike the rest of us; for whatever we may be, or our products, we expect higher things from others; and it depresses us—at least it depresses me—to be faced with the evidence that after all mankind is a rather commonplace bunch and that most of us let the past or some other agency do our thinking for us. But this is not the wind to fill the sails of adventure and I am glad to let it die down.

"Architekten" COPENHAGEN

The Breeze Favors

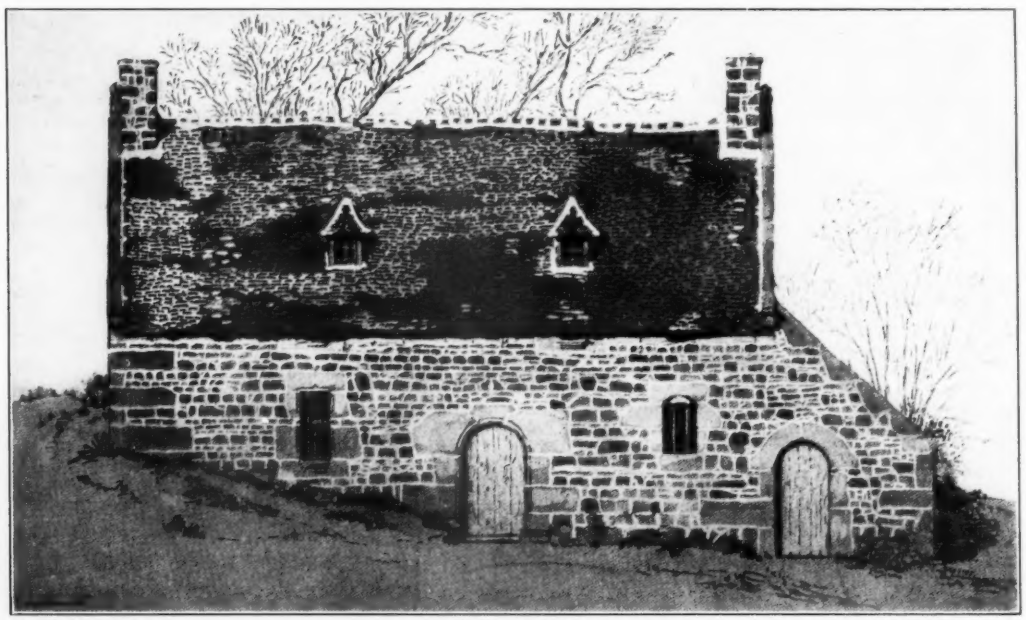
I have spoken heretofore of the agreeable fenestration and massing in the work of the Danes. Simple, austere, bare almost to nudity as some of the work is, yet there is a proportioning of solids and voids which our own designers of human habitations, especially in the apartment or tenement house expression, might study to advantage. I direct your attention to some reproductions from *Architekten* of Copenhagen. Not an applied feature except the crest over the portal of the private residence and the rather over-emphasized corners of the tenement block. While the wind is blowing continentalwards let us note an issue or two of *L'Architecture*, especially that devoted to the 46th Congress of French Architects at Strasbourg.

The profuse manner in which the convention city is illustrated would indicate that it was almost *terra nova* to a majority of the French architects, for though the buildings shown in the cuts mostly antedate the sorrowful 1870, yet, though so near the border of France, they must have been hedged about with an atmosphere, so to speak, which made them inaccessible to younger French eyes and only a misty vision to the older. And now France and the French architects may glory in them. I find myself glorying with them as I scan these pages. I am frank to say that my sympathies are with the mediæval rather than with the more modern examples even though the latter seem more in accord with the contemporary French attitude toward art. In the former, as evidenced in the Cathedral and in some of the wonderful half-timbered houses, there was the will to *build* in the spirit of sincerity, and of inherent beauty. In the latter, as exemplified in the Hotel du Gouverneur and others of its class, is displayed a real French ability and intention to do sweetly—pretty stunts of draughtsmanship and craftsmanship; to fill spaces to no especial purpose; "to construct," as the Scotch critic said recently and aptly, "furniture in stone." The two types are shown in close juxtaposition in the pages of the magazine, as they stand in the "redeemed"

"Architekten" COPENHAGEN

city, and their merits and demerits can be conveniently contrasted. The French of recent, and of comparatively recent, years may be considered as falling under the same gentle indictment which is hurled against the poor Greeks by Henri Mayeux in a previous issue of *L'Architecture*. He says, in "The Rationalistic Pretense (*le pretendu rationalisme*) of Greek Architecture," that the Greeks "sought beauty and sacrificed reason." I am inclined to feel that though there may not always have been a thoroughly logical expression of the plan yet there may have been reason in that; and certainly Doric and Ionic beauty were conceived in reason. Perhaps, after all, Greek art, like the Bible, may be relied upon to furnish substantiation for as many and as adverse theories as the minds of men can formulate. An article on the houses of Brittany in the 10 October issue is accompanied by charming sketches one of which we reproduce.

ARCHITECTURE is now the name of the *Journal of the Society of Architects*, and the first number, that for November, contains much interesting and readable ma-



"L'Architecture" HOUSE IN BRITTANY

"The Architect"

GARDEN VIEW—KILNQUAY, FLUSHING, FALMOUTH
W. A. Forsyth and H. P. G. Maule, *Architects*

terial. By the way, I prefer the old title as less commercial and more professional, but the large open type and fair margins now make a page de luxe, all the more attractive because of the single column but, also, more tiresome to the eye in reading. I quote a paragraph from Mr. Robert Atkinson's comprehensive report on the Victoria Scholarship Competition, conducted by the Society, the subject this year being an Olympic Stadium. The idea underlying the paragraph is not altogether new to the progressives in this country but our schools need to be reminded of it, while in England the conservatives, who appear greatly in the majority, if we can trust the published illustrations of contemporary work, will find the doctrine heretical. Mr. Atkinson says:

"I wish to say a few more words in conclusion to deprecate the recent tendency in architecture to reproduce historical details as the beginning and end of design. It is still the fashion, unfortunately, to study historical buildings from the outside, which is actually not studying architecture at all. You are only studying external expression, the details of which may or may not be applicable to your new building. Architecture would rapidly become nothing but a study of detail if such were to go on indefinitely. Fortunately the practice is breaking down and, except at the Academy, where nothing but the exterior of buildings appears to be considered, everyone knows that a fine plan properly drawn is just as beautiful as any elevation. I must congratulate the Society on the conditions of their competitions, which always meet with an unusually good response. I think it is due to these that students have confidence that they will get a good run for their money. The judging of students' competitions is not always done as it should be. There is often a tendency to give the prize to a plan or set of drawings which have nothing to commend them except the enormous amount of labor expended on them. Quality and common sense seem to be unnecessary. We ought, therefore, as students, to be very thankful to The Society of Architects for doing these things as they should be done."

The Stadium for the British Empire Exhibition, 1923, by Messrs. John W. Simpson and Maxwell Ayrton, accompanying this report, probably meets with Mr. Atkinson's approval. It meets with mine.

Presidential Prose—and Cons

This is the open season for presidents of architectural bodies in England; that is, having been run down, they now return fire, and the British architectural columns are filled with their resounding words. Mr. Paul Waterhouse, President of the R. I. B. A., as reported by the architectural press generally, refuses to fire at any one particular target, though in his random fire he hits one or two and misses some others. When he says that he "frankly admires the London County Council Building" I think that he misses a big one,—and I begin to feel that perhaps some of the targets which I thought I saw wabble a little weren't fairly hit. "Architecture is an Art whose

"The Architect"

THE HALL—KILNQUAY, FLUSHING, FALMOUTH
W. A. Forsyth and H. P. G. Maule, *Architects*

business," he says, "is to clothe utility in beauty—utility for the citizens, beauty for the city." "Balance utility and beauty lest either should over-weight the scale." That seemed to hit—but did it? I object to the term "clothe"; it directs my mind back to Mr. Atkinson's paragraph just quoted. Real architecture does not clothe in extraneous forms. Real architecture is utility, if you will, conceived as beauty—conceived in beauty and "clothed" in its own fair form and only in that. That seems to me a fairer hit. I like the inaugurations of these R. I. B. A. presidents. I was present on one of those delectable occasions and had the privilege of seconding the motion of thanks to the then reelected president (Leonard Stokes, F.R.I.B.A.), for his able address. The surroundings were inspiring and I really did thank the president for his remarks and the Society for permitting me to thank him. We do not do the thing with quite the finish over here as it is done over there.

The Architect of 17 November contains the presidential address of Mr. E. J. Partridge, new president of the Society of Architects. As I have hinted previously, *The Architect* was not altogether favorable to the proposed but afterward deferred schemes of the R. I. B. A. Committee on Unification and Registration and so, gladly I imagine, makes space for this address which analyses the situation and promises the Society that it shall not be swallowed up in any scheme for Unification which does not preserve its individual integrity. That great question will not down—its ghost still walks. *The Architect,* by the way, should not take Mr. Mencken too seriously. If he wanted an architect a week hanged in England, think of what he would want in conservative Boston! Would one a day satisfy him?

Mr. Francis Jones, F.R.I.B.A., in his presidential address before the Manchester Society of Architects, argued for education as a basis of Unification; and we might all agree to that if we could unify our ideas on education and the channels through which education should flow. When we consider the subject of education my mind reverts again to Mr. Atkinson's paragraph, for while he did not write with education before his eye there is more to be read between the lines than is presented baldly in the text.

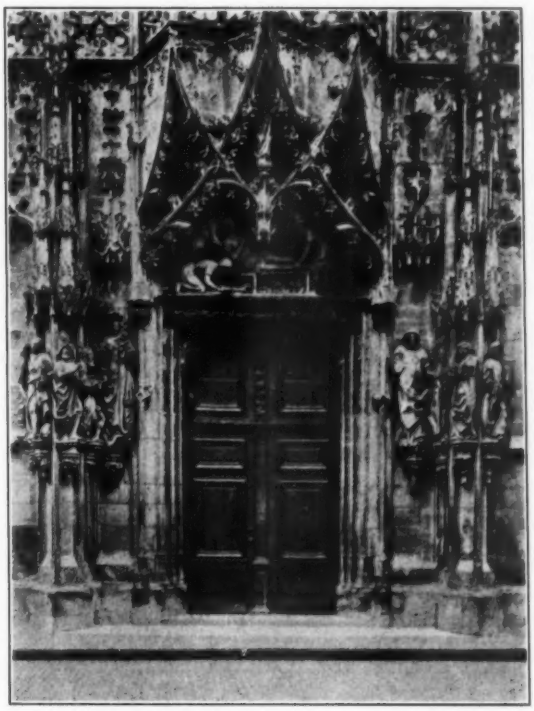
From Mere Words to Deeds

But let me turn now from a consideration of Words to an observation of Deeds. The bunch of architects who affect the mediæval in this country struggle, oh! so hard, to have the children of their brains(?)—no,—of their draughting rooms, born old, at least born looking old—as note a recent memorial building in New Haven. Somehow we miss the spirit of age in the exuberance of our youth and, in simulating age, we do not express ourselves or anything very intimately related to us. With our British brothers it is different. It seems easy for them to express the spirit of age; it is all about them and enters willy-nilly into their work even when they are dealing with problems of a youthful modernity. With them it

STRASBOURG—MAISON KAMMERZALL *"L'Architecture"*
Place de la Cathédrale

STRASBOURG *"L'Architecture"*
Rue de la Douane No. 1

STRASBOURG—HOTEL DU GOUVERNEUR *"L'Architecture"*
Escalier d'Honneur



STRASBOURG—THE CATHEDRAL *"L'Architecture"*

does not seem like a mere clothing of youth in the habiliments of age—they achieve the spirit of age. Note the lovely little residence at Kilnquay, Falmouth, by Messrs. W. A. Forsyth and H. P. G. Maule, Architects. The house was born old—the spirit of mellowness, of poise, and calm, has been caught and held. The house is quite fully presented both of itself and in its surroundings in *The Architect* of 10 November.

Community Planning and Housing

CLARENCE S. STEIN, *Associate Editor*

Origins of Zoning

In his recent admirable work on the law of city planning and zoning, Mr. F. B. Williams says that "Zoning, although in germ French, was first developed in Germany, and it is in that country that it has been most widely employed."[1]

As intimated by Mr. Williams, the wide legalized application of zoning in Germany does not imply that the idea of zoning is German in origin. Therefore the statement may be apt to arouse our curiosity as to the gradual development of the zoning idea. A retrospective search will convince us that use-zoning, at any rate, found some practical application in the Middle Ages, while its importance was recognized by several of the famous writers on architecture in the 15th, 16th and 17th centuries.

In the mediæval cities industrial and commercial activities were, as is well known, generally localized to certain streets or districts, but usually not in a promiscuous way. The very names of streets in the centre of ancient old-world towns often remind us of the activities once principally carried on in them. If so many names of streets had not been changed, we should now have a more adequate idea of this districting of activities. Was this an automatic phenomenon, so to speak? In most instances it was probably not effected through legislation. However, instances are known in which certain trades and crafts were excluded from legally designated districts or streets, and inasmuch as this was the case, it implies at least a rudimentary application of use-zoning.

Particularly significant is the appearance of the zoning idea in Italian treatises on architecture during the 15th century. Leone Battista Alberti emphasizes the importance of use-zoning in his great fundamental work *"De re aedificatoria."* So do also Filarete in his *"Trattato di Architettura"* and Francesco di Giorgio Martini in *"Trattato di architettura civile e militare."* These works were all written before the year 1500.

Alberti's main statement regarding zoning is immediately preceded by the assertion that "the principal ornament of the city will arise from the disposition of the streets, squares and public edifices, and their being all laid out and contrived beautifully and conveniently according to their several uses: for without order, there can be nothing handsome, convenient or pleasing. Let us lay out the platform of our city," Alberti continues, "in such a manner that not only strangers may have their habitations separate, convenient for them, and not inconvenient to the citizens; but also that the citizens themselves may converse, negotiate and dwell together commodiously and honorably, according to their several ranks and occasions. It will add much to the beauty of the city if the shops for particular trades stand in particular streets and districts in the most convenient parts of the town. Goldsmiths, silversmiths and painters may have their shops in the public place and so may the sellers of drugs, of habits and other creditable trades; but all nasty, stinking occupations should be removed out of the way, especially the offensive smells of tanners, which should be set by themselves and towards the north, because the winds seldom blow into the city from that corner."

The desirability of use-zoning could scarcely be more definitely stated. It was a common-sense suggestion on the part of a writer, who not only was acquainted with the tendency toward use-zoning in mediæval practices, but who also was conversant with allusions to the usefulness of districting, contained in Vitruvius' books on architecture, as well as in writings by Plato and by Aristotle.

Filarete and Francesco di Giorgio Martini advance similar ideas. Filarete applies them to the planning of the city of Sforzinda, an elaborate conception, fanciful and visionary, but in reality very valuable in its essential contents. To the planning and grouping of Sforzinda Filarete gives the final touch in saying that "the houses of the craftsmen were allotted to the various guilds, so that each class of craftsmen lived in a separate group. Moreover, the superior crafts, as those of the merchants, the money changers and the goldsmiths, were admitted to the principal squares, while the inferior crafts, as those of the shipbuilders, the wheelwrights, the ropemakers and the coopers, were restricted to the suburbs; and, finally, the masons and the farriers were assigned places near the city gates. Only the druggists and the barbers were, for the sake of convenience, permitted to settle in any street, so as to be distributed over the whole area."

Giorgio Martini's suggestions regarding districting are even more detailed. He wants to admit druggists, tailors and mercers to all the main streets, in which, on the other hand, neither shoemakers nor cabinetmakers should be tolerated on account of the noise incidental to their work. Butchers should be restricted to five or six places because of the smell. Slaughter houses must be erected in the outskirts. "In general," he concludes, "all trades essentially beautiful and dignified may be located in the principal streets and public squares, whereas those which are obnoxious through filthiness should be segregated."

Less in evidence are such speculations in the chapters on city planning contained in the subsequent, important works of Pietro Cataneo, of Andrea Palladio, and of Vincenzo

[1] *The Law of City Planning and Zoning*, by Frank Backus Williams. Macmillan, New York City. 1922.

Scamozzi. Palladio says nothing with a bearing on this aspect of planning; Cataneo at least grazes the matter; Scamozzi is more communicative.

With Scamozzi's voluminous, but uncompleted work, *"Idea dell 'architettura universale,"* we have entered the seventeenth century. It appeared in 1615, 130 years after the publication of Alberti's *"De re aedificatoria."* North of the Alps, even as far northward as in the Scandinavian peninsula, city planning had by this time, to some extent, accepted the Italian doctrines, as regards the formal aspects of planning. Most visible were the effects in France; England was practically untouched. But it is only in the course of the seventeenth century that city planning begins to move more decisively in the direction which points forward to the development during the nineteenth century. Now France appears as the country that above all claims our interest. From the reign of Henry IV onward France applies strict and well-defined administrative methods and, in the seventeenth and eighteenth centuries, gradually builds up a city-planning and building legislation of considerable scope.

In the course of this process appear attempts at practical application of zoning, mainly, however, of bulk-zoning. With a view to restricting the height of houses a local ordinance was issued in Paris in 1667. Up to that date no limitation had been imposed. Henceforward, it would not be permitted to erect houses whose fronts exceeded eight toises (fifty-one feet) in height, measured from the ground to the main cornice. Was there no exception to this rule? Such an exception with regard to a defined area, street, or district, would evidently constitute an attempt at zoning. In fact, special regulations permitting a greater or enforcing a lesser height, within a restricted area, were subsequently enacted. Some such instances date from the years 1672, 1720 and 1765.

However, especially interesting is the decree of the year 1728 concerning bulk- and use-zoning as applied to a group of buildings for a specific industrial purpose. In southern Paris, on the Bièvre Creek, there existed a number of tanneries. The ordinance referred to restricted this industry to a zone along the creek, prohibiting the erection of any new buildings for this purpose outside its limits and at the same time restricting the height of new structures to thirty feet.

Yet zoning regulations of greater range came into appearance before the Revolution. There is the ordinance of 1724 "regulating the limits of Paris," which contains an article prescribing special height limitations for the suburbs. This injunction was formally rescinded in 1765, but in the following year it was proposed to divide the northern suburbs into an outer and an inner zone with a permissible height (inclusive of roofs) of fifty and sixty feet, respectively, the lower height also to be applicable in the suburbs south of the Seine. This proposal, as well as others of similar purport, prove that the question of bulk-zoning was very actual in Paris at the time, as was also the pertinent matter of regulating the width of the streets. In 1765 it was decreed that no suburban streets should be less than thirty feet wide, and finally there were enacted in 1783 and 1784 the first comprehensive, differentiated regulations regarding the width of streets and the height of houses. This legislation was soon superseded by the similar law of 1796, which divided the streets into five classes, according to width, and regulated the height of buildings proportionally.

It is to be noted that the regulations thus quoted were inspired by purely practical motives, even if these motives, in some cases, had nothing to do with hygienic considerations. Besides, there were instances of bulk-zoning for æsthetic reasons. This is exemplified notably by the Place des Victoires and by the Place Vendôme, surrounded by private houses, which formed an architecturally uniform whole of specific height, regulated and protected by law.

What has been said may suffice to prove that the idea of zoning is of ancient origin, while the method has been seized upon with special energy by our age in order to make it adequately and efficiently serve the ends of well-conceived city planning. Its relation to the whole of which it forms part, is that of a servant to his master. This implies that it must not be considered, either in theory or in practice, as being merely an independent method of palliating evils, which are the legacy of the neglectful past.

NILS HAMMARSTRAND.

Architecture—the City's Hope!

"The American Vitruvius: An Architect's Handbook of Civic Arts" [1] is a volume neither to be waved aside with a grand gesture nor to serve as occasion for expert quibblers to display their facility. One studies with increasing interest and enthusiasm the text and the huge documentation. (There are over twelve hundred illustrations, carefully and at times exhaustively captioned.) The conviction grows that the authors, Werner Hegemann and Elbert Peets, have produced a book of exceptional value to the American architect. Nor from its beneficent influence should those who call themselves "city planners" be excluded.

It would be undiscriminating to harp upon the obvious, but probably unavoidable, difficulty occasionally found in pursuing the cross references between the text and the captions of the illustrations, and between the captions themselves. It is relatively unimportant that there are in the text occasional infelicities of expression. And last but not least, it would appear proper (incredible as this may seem) to avoid using the volume as a pretext for verbose amplification of divergent opinion. The author's purpose is definitely stated, and it would be churlish to deny that that purpose is admirably achieved.

In the foreword of the volume it is stated that "the purpose was not to make a history of civic art, nor to formulate a well-rounded theory of its practice, nor to produce a full record of its present state. The objective has been the compilation of . . . a representative collection of creations of civic art." Further on, the authors say "One of the foremost aims . . . is to bring out the necessity of extending the architects' sphere of influence, to emphasize the essential relation between a building and its setting, the necessity of protecting the aspect of the approaches, the desirability of grouping buildings into harmonious ensembles, of securing dominance of some buildings over others, so that by the willing submission of the less to the greater there may be created a larger,

[1] Published by Wm. Helburn, Inc., New York City. 1922.

more monumental unity; a unity comprising at least a group of buildings with their surroundings, if possible entire districts and finally even, it may be hoped, entire cities."

Such an idea will be more than familiar to those who were trained in the better architectural schools. It will not be new to those men who, in their student days or later, made themselves really familiar with historic architecture, who spent their holidays sketching colonial mansions, who were alert to trace the schemes of newly designed structures back to the particular école plates inspiring them, who argued architecture among themselves until the early morning hours. Nevertheless it is well that the essential integrity of this idea should be re-emphasized in these days when, according to a noted educator, "we have reached the point of reverence for mediocrity, for submergence of individuality in mass ideals and creeds." Days when a practitioner may forget that his title of architect is a dubious one if he finds himself trying to conceive a building independent of its surroundings.

"The artist himself, running continuously against the opposition of the so-called 'practical' man with his 'lack of funds' and his untrained imagination, gradually learns to make concessions and to be satisfied with compromise. He finally loses the nerve to propose big plans and to fight for them, as he learns that support is much more readily enlisted for the production of little things. It is invigorating, even for the strongest, from time to time to see together a large number of compositions, daring solutions, straightforward proposals untainted by compromise." After saying this, the American Vitruvius proceeds to set forth just such examples.

Messrs. Hegemann and Peets, without debate, concede enormous importance to those practical problems "which newspapers and public officials can appreciate and even property rights can be induced to recognize." But if this book on civic art deliberately avoids treatment of the engineering aspects of city planning it is because "the authors feel that the young profession of city planning is drifting too strongly in the direction of engineering and applied sociology."

The first chapter of the American Vitruvius deals with the modern revival of civic art. In it are discussed the teachings of Camillo Sitte and the mediæval and renaissance designs upon which he based his arguments. This has a peculiar value because Sitte's book (An Architect's Notes and Reflexions upon Artistic City Planning—1889) has not been translated into English. Unwin, Triggs and other writers have quoted him and reproduced plates from his book, but the present writers have given a synopsis of the book and have reproduced a very much greater number of his plans and sketches. His theses form no mean part of the argument presented by Hegemann and Peets. The gist of the matter with respect to plazas and open spaces lies in the proved necessity of relating the mass and elevations of the principal buildings to the area of the open space, to the height and dominant motifs of the various buildings, to any free-standing structures in the composition; and (perhaps most important of all) the unifying of the group of buildings, together with the arrangement and control of openings in the bounding frame of buildings made by impinging streets. For example, the Place de L'Etoile is shown as typical of an open space whose bounding frame is too much broken by the many radiating streets. That Sitte possessed both discrimination and taste is made quite evident. Two of his particular bête noires are cited; first, the plaza which is not designed by an artist but is an ugly left-over which results from permitting many streets to intersect indiscriminately at one point, producing no effective building sites; and, second, the casual way in which public buildings which are not adapted to stand free are so often dropped somewhere into plazas ill suited to set them off. American architects will be interested in Garnier's objection to the shape of the site for the Paris opera forced upon him by Haussmann. Likewise in the present authors' criticism of Garnier's adaptation of his building to this site! In fact, the main thesis of relation of building to site, even when the latter partakes of elements beyond the control of the designer, is first disclosed in this chapter and is reiterated throughout the book.

The second chapter is devoted to Plaza and Court Design in Europe. A particularly valuable portion treats of the size of renaissance plazas and contains a plate of sections showing both vertical and horizontal angles of vision. Here one encounters the designer's adjustment of the scale of the façades of buildings to the open areas upon which they face. This seems especially pertinent in view of the frequency with which modern designers adopt, for buildings of nondescript location (upon a narrow street, for example), the motifs and scale of some well known building which was related to a definite plaza area. The descriptions and plans of the royal plazas of France are supplemented by a plate showing a portion of the plan of Paris superposed upon which are nineteen projects, in different locations, submitted in the competition of 1748 for the placing of a statue of Louis XV. The chapter is concluded with an interesting treatment of modern plaza design.

The Groupings of Buildings in America follows, in chapter three. Here are presented analyses of plans of the various World's Fairs, of civic centers, hospitals and institutional groups. The reader, by this time, has become fascinated by the wealth of material subject to his analysis; and he finds himself agreeing or taking issue with the authors upon the merits or demerits of plans or elevations.

One cannot hope adequately to describe a reference book such as this. It is noticeably difficult with respect to the chapter (four) on Architectural Street Design. This material is also presented analytically. Vistas and terminal features, churches in street design, harmonious street façades, street arcades and colonnades are discussed. The thesis is that brutality in street arrangement (so typical in American cities), maladjustment of building sites, the lack of dominant horizontal motifs, are handicaps in achievement of artistic results. Sitte is quoted as saying that "practically any system of street design can be brought to an artistic effect provided it is not carried out with that brutality which may satisfy the local spirit of modern American cities and which, unfortunately, has lately acclimated itself in Europe." To be æsthetically successful it becomes clear that there should first be an understanding of the handicaps, and then adequate meas-

ures to correct and control the condition. How to control the impositions of the self-willed and æsthetically sterile municipal engineer, how to encourage individual property owners to merge and coordinate the designs of adjoining façades,—these are problems the solving of which will produce real advancement in civic art. Apropos of the problem of unifying street façades, the authors call attention to the probability that the solution will more readily be found in those sections where inexpensive dwellings are located than where the more costly residences are found. The street of moderate or low cost houses more easily lends itself "to harmonious design, to uniform material and color, to the grouping of single and row houses, and to effective rhythmical repetition."

In discussing Garden Art as Civic Art (chapter five) one finds oneself still in contact with the original thesis mentioned in the presentation of the problems of plazas and other open spaces. Indeed, cognizance was taken at that time of the adaptability of formal plantings, in lieu of buildings, to be the "frame" or a part of the frame of composed and restful open spaces. Private estates are treated as examples of buildings controlling the design of large areas; and similar consideration is given to the problems of parks and gardens, garden squares and cemeteries. One imagines the advocacy of an intelligent adaptation of park treatment to the conditions of actual site and probable use would arouse no opposition if stated thus generally. However, in what appears to be a consistent development of the idea, the authors may find themselves treading upon the toes of partisans of "always informal" landscape design. Between an absurdly informal treatment "upon the pretence that the area is a piece of untouched nature" and a beaux arts scheme made by anyone but a genuine artist, a choice would drive one quite mad. But the authors suggest no such alternative; they are much too wise. None but a careless reader, misinterpreting the thesis, would be likely to take serious issue with them. And, carefully digested, their argument should be a sane antidote for much that has been put over under the name of landscape gardening.

The discussion (in chapter six) of City Plans as Unified Designs is an attempt to present the problem of civic art in its highest aspect and most complex form. By contrasting the achievements and failures (according to the point of view) of large cities like Rome, Paris, London, Berlin, and smaller cities such as Versailles and Carlsruhe, the student is made to realize that this major problem has never been solved. There is a tonic warning against being misled by exceptional accomplishment in detail. Admit what one will as to the merit of detailed developments in any of these cities, there yet remains a viewpoint from which their city planning effort appears as a distinct failure. They are indeed—these old cities as well as our newer ones—hardened sinners. Lest the picture be too dark, the authors add exhibits of encouraging achievement in garden suburb and modern housing development. The contrast of these with the familiar æsthetic desolation of vast areas of older urban dwellings only serves to emphasize the failures.

City planning, like all other planning, is primarily the establishing of relationships. The degree in which the number of relationships to be established is restricted represents the degree of failure in the planning. Logically, therefore, trained imagination and analytical ability are prime requisites. But frequently those persons who undertake or support city planning endeavor are content to restrict the planning to detailed and simple projects. They wish to be "practical" (whatever that is!) and they do not see the ramifications of complex problems. It has already been noted that the authors of the American Vitruvius recognize this great psychological obstacle.

Mr. Peets' final chapter (seven), upon the Plan of Washington, sketches the development of the plan and points out many defects. In the main, his criticism appears quite just, even though it may prove startling to those who have accepted without question the assumed perfection of L'Enfant's plan. Apropos of the McKim-Burnham-Olmsted scheme the author quite dispassionately indicates some question as to the probable artistic results. Although space may not be devoted here to an abstract of Mr. Peets' argument, his indictment will be seriously considered by those who have followed the preceding arguments in this volume. This, one infers, is all the author would ask of any reader or student. Actually, throughout the book, the idea is set forth both implicitly and explicitly that a designer should approach his problem with the open-mindedness of the genuine student.

In conclusion, one cannot summarize better the reasons for presenting this monumental work as "An Architect's Handbook," than by quoting the authors themselves: "It is much easier and more respectable to be an engineer, an 'uplifter' or a business man, than it is to be an artist. But unless our efficient civilization is to produce nothing but its own efficiency, our cities must not be shaped solely (sic) by engineers. . . . . If the public inaction in the field of civic art is due to a lack of appreciation and the difficulty of cooperation, it is not easy for the architectural profession to allege the same reasons. Civic Art is their peculiar field; the number of practitioners is small; their tastes and training are much more uniform than among the general public; strong professional societies exist. . . . The medical profession looks upon an uncontrolled epidemic as a stain upon the honor of the profession,—and was there ever a more deadly plague than the ugliness of the modern city! The best hope for mitigation lies in the strong unified action of the architectural profession." FREDERICK BIGGER.

European Comment on Housing in the United States

Next to the report of the Milwaukee Housing Commission, that of the Reconstruction Commission of the State of New York was probably the most fundamental in character of any official statements on housing which have been made in this country. A recent issue of *Volkswohnung* analyzes the last named report very completely and concludes with the following observations:

"The report and proposals of the Committee are interesting in more than one respect. They show, above all, how undeveloped is housing policy in the United States as compared to Continental Europe; how little is understood of the function of the State and the community in housing; and what happens when so important a respon-

sibility for the common good—the necessity for good housing for those who cannot get it through their own effort—is left to the mercy of private initiative, not only unsupplemented but unregulated. As a matter of fact the proposals set forth by the Reconstruction Commission of the State of New York are extremely conservative. They contain nothing that has not been long recognized and practiced in other countries. Nevertheless, they were considered as too radical. That child-like faith which believes that the common good can only be achieved by private initiative is still a too powerful agency in the United States. National pride, which refuses to recognize the indisputable fact that a great proportion of American citizens are unable to provide themselves with a decent home, ranged itself against any state aid for housing. Instead, a clever subterfuge was invoked. Tax exemption —really a concealed subsidy and which cannot and never did give any direct benefit to the occupant of a home—was adopted and its benefits are being drawn off by builders and speculators, while tax-exempt houses, so-called, are built to rent for from $20 to $30 per room per month." *Volkswohnung* concludes with an approval of the statement made by Mr. Stein in his recent article comparing the housing policies of Amsterdam and New York: "The housing problem in New York is not yet understood. The city seems determined to grow according to the whim of the speculative builder, who continues to build ugly boxes in rows. And the worst of it is that his work stands there to mock us long after we have recognized the necessity of united effort and technical direction in housing and city planning."

Standardized Zoning

The Department of Commerce has recently issued a preliminary edition (August, 1922) of "A Standard Enabling Act under which Municipalities can Adopt Zoning Regulations."* This is an unusually neat piece of work. Three pages of explanatory notes precede the recommended Act; and the Act is clarified by illuminating comments, which appear as footnotes, concerning the significance of particular words and phrases used in the Act. These footnotes bring one quite up to date with respect to the state of judicial opinion concerning the interpretation of the words and the phrases used. It is also made very clear why particular words and phrases are used in the Act rather than other words and phrases. The entire document, Act and footnotes, is confined to seventeen typewritten pages, something of a feat in condensation when it is taken into account that the legalities of the case are very fully covered.

Aside from its value as a guide to those concerned in the preparation of Enabling Acts of this sort it is of equal value as a suggestion in the matter of presentation, as the following quotation of the first page so clearly indicates:

"A Standard State Zoning Enabling Act"

"Section 1. *Grant of Power.* For the purpose of promoting health,[1] safety, morals, or[2] the general welfare[3] of the community, the legislative body[4] of the cities and"—

1. *"health"*—It is to be noted that the word used is "health" not "public health"; for the latter narrows the application. There are some things that relate to the health only of the people living in a given dwelling, such, for instance, as the size of inner courts, and have only a remote relation to public health. If the term "public health" were used the Act might be set aside in a given case where it would be possible to show that the particular provision in which legal action was being taken did not concern itself with the public health, but only with health.
2. *"or"*—It should be noted that the word used is "or" and not the word "and." If the latter word were used then it might be necessary to show to the satisfaction of the court that *all* four of the purposes mentioned were involved in a given case, viz., health, safety, morals and general welfare. The use of the word "or" limits the application to any one of the four instead of to all of them.
3. *"general welfare"*—The main pillars on which the police power rests are these four, viz., health, safety, morals and general welfare. It is wise, therefore, to limit the purposes of this enactment to these four. There may be danger in adding others such as "prosperity," "comfort," "convenience," "order," "growth of the city," etc., and nothing is to be gained thereby.
4. *"legislative body"*—This term is sufficiently understood to include all forms of government including Commission and City Manager, as well as the older forms of government. Whatever form of government exists, there must be some local body performing legislative functions.

It is evident that the notes are the work of others than amateurs in zoning; they indicate experience, particularly the experience of having made contact with judicial opinion. And so the notes appear as fatherly advice to the inexperienced in zoning and to those who would push the matter too far ahead of the time honored judicial point of view.

The fact that the document comes from the Department of Commerce may be viewed by most as of no particular significance; its origin may be accepted as an altogether matter-of-course event in the ever-expanding functions of the State. That the State had seen fit to so take notice of zoning might be viewed as the all-important matter.

But one might take the point of view that the origin of this document is in itself a matter of consequence—for Departments of State are conceived with certain aims and purposes in view; and the achievement of those aims and purposes is likely to condition the work undertaken by them. Its origin in the Department of Commerce may therefore be looked upon as an event which not only clarifies the aims of zoning, but as also likely more firmly to establish them. A.

* A Standard State Zoning Enabling Act Under Which Municipalities Can Adopt Zoning Regulations, prepared by The Advisory Committee on Zoning, Appointed by Secretary Hoover. Edward M. Bassett, Lawyer, Counsel, Zoning Committee of New York; Irving B. Hiett, Realtor, Ex-President, National Association of Real Estate Boards; John Ihlder, Housing Consultant, Manager, Civic Development Department of the Chamber of Commerce of the United States; Morris Knowles, Consulting Engineer, From the Chamber of Commerce of the United States; Nelson P. Lewis, Municipal Engineer, From the Nation Conference on City Plannings and National Municipal League, Past President American City Planning Institute; J. Horace McFarland, Master Printer and Civic Investigator, President, The American Civic Association; Frederick Law Olmsted, Landscape Architect, President, The American Society of Landscape Architects, Past President American City Planning Institute; Lawrence Veiller, Housing Expert, Secretary and Director, The National Housing Association; John M. Gries, Chief, Division of Building and Housing, Department of Commerce.

Public Information Page

THE COMMITTEE ON PUBLIC INFORMATION AND PUBLICATIONS announces the issuance, in the near future, of an Institute Document on *The Functions of the Architect.* This publication is still a matter of careful study, and the first edition will be distributed for criticism by the members of the Institute, so that the second edition may be in definite form. The Committee also has made material progress in procuring a series of articles on architectural subjects, written by men of ability, for distribution to newspapers throughout the country. Chapter Committees on Public Information will be the avenues of distribution so that the articles may be made available to local newspapers.

THE ILLINOIS CHAPTER has begun the issuance of a bulletin called "The Leaflet," its motto being "to make the profession of ever increasing service to society."

THE BALTIMORE CHAPTER, under the leadership of Mr. John H. Scarff, has continued its articles in the Baltimore *Evening Sun.* One lately published treats the subject of furniture and makes special reference to Duncan Phyfe. This Chapter is also inaugurating a study of a city plan for Baltimore.

THE KANSAS CHAPTER is working with the Kansas Society of Architects in an effort to obtain the passage, this winter, of a State License Law, and is also active in inducing some of the local newspapers to publish special building numbers.

THE MICHIGAN CHAPTER held a meeting this fall to which some fifty contractors were invited for a discussion of the growing tendency of large contracting firms to establish architectural departments. The Chapter had prepared a list of eighteen questions and the answers of the contractors developed interesting points of view that were beneficial to both sides.

THE SOUTH CAROLINA CHAPTER has begun to act along the lines suggested by the activities of other Chapters and is taking up with the *News and Courier* of Charleston the subject of publishing articles related to architecture.

THE SOUTHERN CALIFORNIA CHAPTER sends a very full and interesting report. Following the example of the Washington Chapter, they have induced the Los Angeles *Examiner,* in its real estate section, to present to the public different aspects of the architect's work. They have asked a selective list of architects to supply drawings for publication with comments on the subjects treated and they have issued special articles. "Why He is an Architect" is a sample of one of the headlines, and several of these articles treat in a general way the functions of the architect.

The newspaper staff has become quite interested and seems to think the work of sufficient value to ask for more of this material. The Education and Publicity Committee, of which David C. Allison is Chairman, has outlined a program for the publicity activities of the Chapter for the next year and has planned a campaign with a paid advertising expert working under the Committee's direction. They are issuing a full page rotogravure section of the Midwinter Number of the Los Angeles *Times* which has a circulation of over 500,000. They have taken a page for a year in the monthly magazine published by the Los Angeles Realty Board. They are cooperating with the Los Angeles *Examiner* in developing a "Building Section" for that paper. Members of this Chapter are writing articles and furnishing sketches for the purpose besides furnishing news items to the local newspapers. Finally, they publish the work of various members in the *California Southland,* a monthly printed in Pasadena. This is quite costly and the money is furnished by the Allied Architects Association, an organization composed of sixty or seventy architects, all members of the Southern California Chapter, although this does not include the entire membership. They have formed a corporate institution which maintains a high class architectural office and devotes itself exclusively to work paid for out of public tax money. It has already received two large commissions, one of which is finished as to the first contract, which consisted of designs and working plans for a two or three million dollar courts and jail building. It has had marked success. The stated motive of the organization is to design good public buildings and not to make money, although it charges full architect's commissions. This leaves a balance which the Association is willing to use to a large extent for the advancement of architecture in general. At a later date we hope to give further details. This work of the Southern California Chapter is so fecund with possibilities that your Public Information Committee hopes that each Chapter will ponder it. The scheme may bear fruit elsewhere if the soil be suited thereto. Possibly such a work, carried on primarily to improve civic architecture, would be better sustained by the whole chapter membership instead of by a group. Sumner P. Hunt, President of the Southern California Chapter, is also filling an executive position on the City Planning Commission of Los Angeles.

THE TEXAS CHAPTER, despite the energy of the Chairman of the Public Information Committee, has had difficulty in inducing the members actually to produce the articles that it needs for publication. The Chapter meets annually and the last convention approved the initial work of the Texas Public Information Committee, urged that the work be pushed in Dallas where it was begun and that it be extended immediately to the other larger cities of Texas. This it is preparing to do.

THE WASHINGTON CHAPTER proposes to revive the newspaper publicity that it carried on so successfully a year ago. It has undertaken two pieces of work, news of which cannot be released until a later date, but which will be awaited with interest.

Again, the Committee begs the chairman of each Chapter Committee to send in a report of the activities of his Chapter and Committee. To be of use it should reach New York not later than the fifth of each month. Please be kind enough to act immediately for the March issue of the JOURNAL.

JOHN V. VAN PELT, *Chairman.*

126 East 59th Street, New York City.

The Washington Plan--A Hopeful Outlook

According to press reports from Washington, plans to make the south side of Pennsylvania Avenue one great Mall, filled with drives and public buildings, as contemplated in the so-called McMillan plan of 1901, will be carried forward to completion, which is now the prediction of Charles Moore, chairman of the Commission of Fine Arts. His views are interesting and timely, in view of the fact that an entire cabinet session recently was largely given over to discussion of a building and park development program for Washington.

Mr. Moore declared that the plans "cannot help but go through," pointing to the park driveway now being put in by the office of public buildings and grounds as evidence of the work being under way. This driveway is being built on the north side of the Mall from the Meade monument, to be erected in the Botanic Gardens, to the Monument.

Mr. Moore conferred with President Harding recently and in the course of the conference, it is understood, they discussed the plans of the Fine Arts Commission for the beautification of the National Capital.

Although Mr. Moore would make no comment on the conference with the President, it was plain, from his optimistic conversation, that he felt that the President is squarely behind the Arts Commission in its plans for the future, especially in regard to the Mall plan.

"We will leave it to the American people to supply the money to carry out the plans," Mr. Moore said. "But when it is spent we want it spent in orderly fashion."

Chairman Moore declared that it was desirable to carry out the plan of 1901 from the Capitol to the Washington Monument, as the plan was founded on the scheme of L'Enfant in 1792. In 1901, Mr. Moore pointed out, the National Capital had secured the necessities of community life, such as waterworks and sewerage systems, and then the real adornment of the city began.

Mr. Moore, in his report for the year ended 30 June, 1921, stated: "There was no intention to have the plan adopted; it was simply a project for the development of the Capital along lines of convenience, good order and beauty. The inherent excellence of the plan as presented is proved by the fact that during the two decades that have elapsed since its publication many and great improvements have been made in accordance with it; its main outlines have been filled in beyond the possibility of change; those departures which have occurred, as in the case of the location of the Interior Department, the architectural design of the war risk insurance building, and the location of the Navy and munitions buildings, are conceded to be mistakes and blemishes. There is no movement to change the plan. On the contrary, all forces are working together toward the realization of it."

In concluding his report, Mr. Moore said: "This is a restless era. All sorts of suggestions are being made for improvements and changes. Many of these new projects are based on the desire of individuals to exploit themselves. Others are due to ignorance of the existing plans and the progress of the work being done in accordance with it, or to impatience as delays in accomplishing plans.

"The Commission of Fine Arts is not concerned with the rate of progress; they are vitally concerned that the progress shall be always toward the goal set in 1792 and again in 1901. It is a matter of satisfaction to them that both Congress and the executive departments are giving an increasingly strong support to the plans, as the understanding of what they mean and whither they tend becomes apparent in the unfolding of the designs."

The Secretary's Page

AT ITS December meeting the Philadelphia Chapter voted that all Chapter member dues be fifteen dollars. The Baltimore Chapter at its December meeting voted that the dues of all members be ten dollars.

IN CONNECTION with the appointment of Mr. Milton B. Medary, Jr., as a member of the Commission of Fine Arts, the following resolution was adopted by the Philadelphia Chapter:

"The members of the Philadelphia Chapter of the American Institute of Architects extend hearty congratulations to their fellow member, Mr. Milton B. Medary, Jr., upon his appointment to the National Commission of the Fine Arts; and also express their gratification that the honor has been accorded to one so eminently deserving by reason of his personality, knowledge, judgment and ability."

CONVENTION organization of Chapter delegates was the subject of discussion at the December meeting of the Philadelphia Chapter. Messrs. Bright and Boyd spoke about the general policy of the Chapter, criticising the lack of organization at conventions and the non-participation in discussion on the floor. Mention was also made of the apparent failure of the Chapter to support candidates for national offices from this Chapter.

Particular reference was made to the failure of the Chapter to participate in the Building Congress Movement, and its action in cooperating with the Industrial Relations Committee of the Chamber of Commerce was condemned. Mr. Boyd spoke of the Building Congress which he has organized, and expressed his wish that the Chapter would join in its activities.

Mr. Boyd asked whether it would not be possible in the event of a shortage of delegates at national conventions for those present to elect others to fill out the delegation. Mr. Lovatt replied by saying that he had inquired at Chicago concerning this, and had been told that such a procedure would be illegal. Mr. Davis spoke of the difficulty of accrediting delegates due to the failure of those elected to notify him of their intentions concerning participation, in sufficient time.

President Lovatt replied, saying that the criticisms and suggestions were received heartily and will be seriously considered. He also stated that the new administration will doubtless be glad to consider the points raised.

FOUNDING an architectural library for the state of Colorado is sought by the Colorado Chapter in an appeal

for support by the architects of the State. It is pointed out that the procedure governing the Registration Law provides that funds accruing therefrom shall be used as the nucleus of a fund to provide for an advanced course in architecture in the State. Thirteen years of operation of the law have produced $5,400, a sum which is not considered as indicating that the amount will ever be sufficient to influence an architectural course at the State university. Hence the library project which would be of the greatest advantage to the Denver Atelier, which is now a firmly established institution with a large enrollment of students and an accredited standing.

DISCUSSING the proposed Architects' Office Building for Philadelphia, Mr. Walter Thomas addressed the Chapter at its December meeting. He considered that location was a prime factor, and that it established itself in the region of the principal streets south of Walnut street and the corners of the minor streets between Fifteenth and Nineteenth. A ten-story building of approximately 30,000 square feet would cost about $300,000, of which one-fourth would have to be raised. Rentals would be figured at $1.50 per square foot. A spirited discussion ensued with the result that Mr. Thomas's committee was asked to report further and that the sense of the meeting was "that the Chapter, through this committee, should initiate the movement and become a member of the syndicate so formed."—*Minutes of the Philadelphia Chapter.*

THE BOSTON CHAPTER, at its December meeting, voted to adopt the regulations which had been framed by Messrs. J. Lovell Little and Ralph W. Gray, to govern the award of the Harleston Parker Medal. The Deed of Gift of the medal is as follows:

Boston, 5 December, 1921.

"To the Honorable the City Council, Boston, Mass.

"Gentlemen: It is my pleasure to present to the City of Boston the sum of one thousand (1,000) dollars, to be held by the City in perpetual trust to apply the net income thereof annually to defray the expense of producing a suitable gold medal, the design of which once approved by the Boston Society of Architects shall not be changed, to be known as the Harleston Parker Medal to be presented by the Mayor of the City from time to time, but in no case at more than three years' interval to such architects or firm of architects as shall have, in the opinion of the Boston Society of Architects, or its successor, by vote at its annual meeting, completed the erection for any private citizen, association, corporation, or public authority, the most beautiful piece of architecture, building, monument or structure within the limits of the City of Boston or of the Metropolitan Park District, as defined in Section 3, Chapter 407, of the Acts of the Legislature for the year 1893; any unexpended income shall from time to time be devoted toward stimulating, as said Society shall vote, the improvement of architecture in the said District. "J. HARLESTON PARKER."

THE KANSAS CITY Chapter, at its January meeting, reviewed the question of the proposed registration law. Its Committee reported that it was still awaiting communications from the Registration Committee of the St. Louis Chapter, and that it had been informed that a slightly amended copy of Senate Bill 111, previously rejected by the Executive Committee of the Chapter, had been reintroduced in the House of Representatives, apparently in the interest of the engineers, and without consultation with the Committee.

WILLIAM G. PERRY and Shaw & Hepburn announce that they have formed a partnership for the practice of architecture under the name of Perry, Shaw & Hepburn, at 177 State Street, Boston.

The Parade of the Critics

Not long ago, as noted recently in these columns, Mr. H. L. Mencken, the Baltimore critic, speaking of the architecture of London, announced that an architect each week ought to be hanged in that city. Mr. Irving K. Pond, in this issue, suggests that if Mr. Mencken could see Boston a daily hanging might scarcely suffice him.

Now we clip from *Architecture* (The Society of Architects) a letter to its editor containing a much less painful solution of the agitating problem. The communication follows:

SIR: Why don't you send a competent young man around London to suggest improvements in existing ugly public buildings, and to mark the hopeless ones for demolition? For example, the Houses of Parliament could be made almost presentable by removing the top storey; and a list of the tombs which should be cleared out of Westminster Abbey would be very useful to a Bolshevik leader in the event of a dictatorship of the proletariat being established. That would give a practical turn to much pointless grumbling and sniffing.—Yours, etc., G. BERNARD SHAW.

American Academy in Rome —Annual Prizes

The American Academy in Rome announces its competitions for Fellowships in architecture, painting, sculpture, landscape architecture, musical composition and classical studies. The stipend of each Fellowship in the fine arts is $1,000 a year for three years. In classical studies there is a Fellowship for one year with a stipend of $1,000, and a Fellowship paying $1,000 a year for two years. All Fellows have an opportunity for travel, and Fellows in music, from whom an extra amount of travel is required in visiting various musical centers of Europe, receive an allowance not to exceed $1,000 a year for traveling expenses. In case of all Fellowships, residence and studio, or study, are provided free of charge at the Academy, with board at cost.

The awards of the Fellowships will be made after competitions, which, in the case of the fine arts, are open to unmarried men who are citizens of the United States; in classical studies, to unmarried citizens, men or women. It should be particularly noted that in painting and sculpture there will be no formal competition involving the execution of work on prescribed subjects, as heretofore, but these Fellowships will be awarded on the basis of a thorough investigation of the artistic ability and personal

qualifications of the candidates. To this end, candidates are requested to submit examples of their work and such other evidence as may assist the jury in making a selection.

Entries will be received until 1 March. Anyone interested should write for circular of information and application blank to Roscoe Guernsey, Executive Secretary, American Academy in Rome, 101 Park Avenue, New York.

The Significance of the Fine Arts

The Committee on Education of the American Institute of Architects announces the publication of the "Significance of the Fine Arts," the book which has frequently been mentioned in these columns, has been discussed at Conventions, and has been the subject of long and serious labor on the part of the Committee. Whatever may be the individual differences of opinion as to the manner in which any of the essayists have done their work, it seems certain that the best effort of the Institute will be devoted to the support of the Committee in its work. It must be remembered that the Committee has not sought to bring out a history of art but to develop a public appreciation of the arts, which is quite another matter. On that basis every member of the Institute can join in promoting the sale and use of the "Significance of the Fine Arts."

Drawing Lots for an Architect. Why Not?

A rather amusing method of choosing an architect is reported from a city of over four million inhabitants situated somewhere along the Atlantic seaboard. It appears that a prominent corporation was about to erect an addition to its present building involving the expenditure of possibly a million dollars. The type of design of the present building practically imposed conformity in the design of the exterior of the extensions. The corporation had purchased the original building from its previous owners; perhaps for that or other reasons the original architect of the structure did not appear to be under consideration in connection with the proposed additions.

A short while ago the corporation in question sent out a letter in substance in this form:

"We are contemplating the erection of an addition conforming in all respects to the building which we are now occupying at * * *

"In view of the fact that we have a great many friends in the architectural profession, we are reluctant to designate an architect for this work and it has occurred to us that you would find no objection to the following plan: the selection of a limited list of competent architects * * * asking them to have a representative accept our invitation for luncheon at * * * at which time the architect will be selected by lot.

"We realize the above method is novel, but we hope that you will appreciate our point of view in adopting this method of selection."

In accordance with this invitation a group of twenty distinguished architects joined the officers of the corporation in a most delectable lunch party. To those who were not present, it would be cruel to describe either the solid or liquid refreshments, either as to quality or quantity. It appears from authentic accounts that so delightful and humorous a spirit was evoked during the luncheon that by the time it came to drawing lots for the job it was certain that the necessary disappointment of nineteen of the twenty architects would be more than smoothed over by their amiable state of mind.

After the cigars were lighted each of the architects present drew an envelope from a hat and at a given signal all of the envelopes were opened. The surprised expression on the face of the winning architect announced the result to his companions at the festive board. A toast was offered to his health and success with accompanying congratulations to the client and the luncheon meeting was adjourned.

On the whole this method was less expensive in time and money to the client, infinitely less expensive to the architects than would have been a competition (indeed, they got a free lunch out of it and had no expenses) and on the whole, we wonder if it is not infinitely more reasonable and sensible than the proverbial architectural competition. A number of architects who were present have assured us that it was much more good-natured and much less of a strain on the temperaments involved. (*Communicated.*)

A Summer School for American Architects, Painters and Sculptors -- Fontainebleau, France

Announcement is made by the Executive Committee in America of the opening of a summer school as indicated above, from 25 June to 25 September next, in connection with the School of Fine Arts at Fontainebleau, under the direct patronage of the French Government through its Ministry of Fine Arts. This group of permanent schools was conceived by Monsieur Fragnaud, is located in the palace, and is under the direction of Monsieur Laloux, Membre de l'Institut and one of the best known patrons of the Ecole des Beaux Arts. In the summer school now announced, under the general direction of Monsieur Laloux, the director of architecture will be Monsieur Carlu; of painting, Monsieur Goguet; while Messieurs Alaux and Bray have accepted the directorship of ateliers for architecture.

Monsieur Baudoin will give an optional course in fresco, while an optional demonstration course in sculpture and modeling will be entrusted to Monsieur Lejeune (First Grand Prix in sculpture and Grand Medaille d'Or). Lectures will also be given by Messieurs Leprince-Ringuet, Fenaille, Calmettes, and Moreau-Vauthier.

The cost of the course will be at the rate of $100 a month, inclusive of board, lodging and tuition fees. As the French steamship line allows a discount of 30% to students, the entire cost of the course could be brought within $500. This sum would also include the excursions

by autobus, which are announced in the circular of the school.

The Executive Committee in America, charged solely with the recruiting of students, is as follows: Messrs. Whitney Warren, *Chairman, Department of Architecture;* Ernest Peixotto, *Chairman, Department of Painting;* Edwin H. Blashfield, *President, National Academy of Design;* Howard Greenley, *President, The Architectural League;* Thomas Hastings, *President, Beaux Arts Institute of Design;* J. Monroe Hewlett, *President, The Mural Painters;* Hermon A. MacNeil, *President, National Sculpture Society;* James Gamble Rogers, *President, Society of Beaux Arts Architects.*

For architects, all applications should be made to Mr. Whitney Warren, 126 East 75th Street; for painters and sculptors, to Mr. Ernest Peixotto, 215 West 57th Street, New York City.

Jurisdictional Awards--Notice of Rehearing on Metal Trim

The National Board of Jurisdictional Awards announces a rehearing of the question of metal trim, at Washington, in the American Federation of Labor Building on 19 February next at 10 a.m. Because of the existing situation the Board is anxious to give everyone an opportunity to be present. The request for a rehearing was granted at a meeting of the Board held in Chicago recently.

The Editor's Notebook

THERE is something curiously cosmic in the history of the nine Wertheimer portraits by John Sargent that are now to be found in the National Gallery. Wertheimer was a Bond Street dealer in old masters, and knew them and their values, and had a taste that savored Oriental vases and pieces of furniture. He was a man of his race and had a personality, and the Sargent portrait has him cigar in hand, facing the painter as easily as he faced an old canvas upon which he had to set a value. There must have been something magnetic—indeed, must there not always be that spark if a great piece of portraiture is to result?—between these two men, one out of the old, old East, and the other from the crudely new West. It would be interesting to speculate upon this thing we call magnetism, in the case of an artist and his work, for it has a deal to do with the result, and it is probably true to say that Sargent never could have been inspired to the point of his greatness in his own land. Age counts in the moulding of races and faces, and there is more than some mere likeness in all great portraiture. Indeed, who can ever forget Mrs. Wertheimer by John Sargent? As one has well said, if all traces of authorship were removed, a few hundred years hence, "The Lady in Black" would be one of the then old masters, and none would gainsay her place with the greatest of them. Besides those two I have mentioned, there were the five portraits of the children and those of Mrs. Wilson Young and Mrs. Fachiri.

Asher Wertheimer died four years ago, and the nine portraits now become an English national possession. Up the commonplace steps of the worse than commonplace piece of architecture that tries to dominate Trafalgar Square and fails, an endless stream of humans will pass to view the great work of a great American portrait painter, and who shall say that it is not just that the National Gallery should have them, and be grateful to the dealer of Bond Street that he saved them from the fate of that traffic in which he was so expert? For art, there was something more than casual in this meeting of East and West.

MR. HILAIRE BELLOC is taking considerable interest in architecture. Last year he lectured to the students at the Architectural Association in London and an echo of what he there said has already been heard by our readers.[1] Much in the same vein he now addresses English architects in "The Return of the Norm," an article appearing in the last number of ARCHITECTURE, the new name for the old JOURNAL OF THE SOCIETY OF ARCHITECTS, London. Some of his opinions would require whole treatises if one were to pursue them to the point of definitiveness, if such a point exists, and yet Mr. Belloc is not afraid to utter opinions in a fairly positive way.

"The characteristic of our time in architecure is chaos," he begins, and although some architects would here take umbrage, we doubt if they could make out a very good case in defense. There is certainly no repose in our modern cities. They are as restless as the lives of the people who live in them. Their streets and their buildings are chaos, not merely in an æsthetic sense, by the way, as our traffic engineers are beginning to note. Of course, Mr. Belloc goes on to define his chaos as one of borrowed style, of mixtures of styles, the canons laid down in the architectural development of past civilizations. The French, he thinks, still preserve a sort of norm for official buildings. The Prussians achieved a sort of unity, although he terms it barbaric, but "in England and America, and to a less extent upon the continent of Europe, the note is chaos."

The explanation he offers is the complete lack of authority and rule of life in these modern days; as a consequence there can be no expression of unity in external things. Yet when Mr. Belloc affirms that because mankind will never accept chaos, but that sooner or later in architecture "one style will establish itself and will spread and become the norm," we confess to a vague surmise that he is departing from the rôle of analyst, for the moment, to become the protagonist of the thing in which he believes,—of authority, to the establishment of which he looks forward with such hope, and with such faith that it will restore balance and sanity and order to a world of chaos.

In other words, we accept his plea for the "central authority" with a feeling that it has already taken form in his mind, which has the effect of somewhat upsetting our estimate of his perceptions. It is easy enough to make out a brief for a change in the form of authority. Certainly the present form of national state will undergo many great changes. It is not improbable that it will disappear. An examination of the budget of any nation

[1] See London Letter in the JOURNAL for September, 1922.

shows such figures for war that it is inconceivable that humanity will continue an authority that can do no better than that. But, if for the sake of argument, we admit that the change will be back to the religious state, we cannot make that support the theory of a return to the architectural norm.

Has not Mr. Belloc lost to sight the fact that man is less influenced by what he sees than by what he does not see? The decline of the church, for example, if studied in connection with architecture, might lead to the searching question: When man has given an architectural image to his faith does that not indicate the decline of interest in that faith? Does not the rise and decline of every period of art mean that very thing? Architecture is an expression that always seems to be marching just behind man's spiritual or intellectual development, and never in advance of it.

We could admit, for example, that an authoritatively imposed norm of life such as would produce an architectural norm, might afford a more pleasurable existence than the present state, with its inflamed hatreds and its recurrent wars of increasing devastation, but even so we still have to reckon with other things. Man as he is is not the last word, as Shaw has pointed out over and over, and unless he mends his ways he will be supplanted. In the meantime, if we accept the Sermon on the Mount as the postulate of man's place in the scheme of things, it is now fairly evident that only after centuries of horrible and grotesque effort shall we achieve that place.

But, as we have said, Mr. Belloc invites whole treatises by his article, and it would be unfair to leave it without crediting him with that kind of speculative mind that architecture needs so much. A new style may come, he thinks, through the mind, or through a mind, or by discoveries in materials that will change the whole scheme of building. Yet it remains a curious commentary that his plea for a norm is supported by probabilities that are endless. They might evolve in endless procession, for example, each being mistaken for a norm, just, as it might be said, that there was once a norm for king's palaces, or for domes on capitols, or spires on churches. But if we are on fairly stable ground when we assert that architecture is, in its culmination, an expression of the spirit of man, are we on as safe ground when we dare to assert that the architectural form in itself exercises an influence on the essential morality of a people? Is there anything in history to support such a belief?

THE NEWSPAPERS, by the way, are at present replete with pictures of palaces from which kings have long since departed. In spirit, the kings have been gone from many a palace for many a day, and yet the form has straggled along, serving no other purpose than to plunge the mind of man into that obfuscation in which he seems to take such evident delight. Looking backward upon Alhambra and Louvre, to venture but a little way into the past, and thence down to Buckingham, we become aware of the durability of form after spirit has departed. And, looking about us, can we pretend that the architectural forms of the present are greatly influencing the conduct of government? Is government improved by good architecture? And this is a side of the development of architecture which artists and historians so persistently avoid or neglect.

In speaking of king's palaces, through the endless corridors of which I have roamed in my day, like many another, I am again reminded of the influence of the unseen. The quest of architectural forms would, I believe, never lead me across the street to examine any king's palace, but I would give I know not what, if I might see the palace of the Queen of the South. Do you remember it as Dunsany has it in the tale? Shard, the pirate, comes up by evening, with the "silver spires of slender Bombasharna, a city that was the glory of the coast. And in the midst of it, far away though they were, they saw the palace of the Queen of the South; and it was so full of windows all looking toward the sea, and they were so full of light, both from the sunset that was fading upon the water and from candles that maids were lighting one by one, that it looked far off like a pearl, shimmering still in its haliotis shell, still wet from the sea."

But, to come back to the norm, let me now confess my own disbelief in the use of any central authority, and let me illustrate by quoting a passage from Wells' new tale of "Men Like Gods," in which he imagines a world physically quite like our own, but some thousands of years ahead of ours in experience. He calls it frankly Utopia, and "Utopia has no parliament, no politics, no private wealth, no business competition, no police or prisons, no lunatics, no defectives or cripples, and it has none of these things because it has schools and teachers who are all that schools and teachers can be. Politics, trade and competition are the methods of adjustment of a crude society. Such methods of adjustment have been laid aside in Utopia for more than a thousand years. There is no rule or government needed by adult Utopians because all the rule and government they need they have had in their youth."

"Said Lion: *'Our education is our government.'*"

And this from "The Legends of Smokeover" by L. P. Jacks, the best book that I have read in many a year:

Professor Ripplemark is speaking and says, "'Teaching' is primary, 'ruling' is secondary. That is to say, we teach, not in order to bolster up a system of University discipline, but we apply discipline only so far as it is needed to promote the ends of teaching. How does that strike you as a model for the constitution of human society in general?"

"Unquestionably the true model," said Rumbelow: "government a department of education instead of education a department of government." What a day for architecture that will be! C. H. W.

Obituary

H. P. Knowles

Died at New York City, 1 January, 1923

Elected to the Institute in 1915

(Further notice later.)

Structural Service Department appears on the second right-hand page following

Structural Service Department

SULLIVAN W. JONES, *Associate Editor*
LEROY E. KERN, *Assistant*

In connection with the work of the Committee on Structural Service of the American Institute of Architects and in collaboration with other professional societies and organized bodies having the same objective—improvement in building materials and methods and better shelter for humanity in all its manifold vocations and avocations.

Abstracts

It is the purpose of the Structural Service Committee and THE JOURNAL *jointly to give, in this division each month, brief abstracts of all publications by the Government Departments and Bureaus, University and other research laboratories, States and Associations, which contain fresh information in regard to materials or methods employed in construction and thus accord architects and others a convenient means of keeping themselves conversant with rapidly expanding knowledge in the technique of construction.*

Rules for Sanitation and Safety of Swimming Pools. (35f2)—(*California State Board of Health. Special Bulletin No. 38, by Ralph Hilscher. Pages 12. Size 6"x9".*) The California Swimming Pool Act, adopted by the State Legislature in 1917, provides that the State Board of Health shall have jurisdiction over the sanitation, healthfulness, cleanliness and safety of all swimming pools within the state The work of accumulating information regarding these pools, of reporting upon the needs for improvements or upon questions of granting permits, and of advising with pool owners and operators regarding means of meeting the requirements of the law, was delegated by the Board to its Bureau of Sanitary Engineering.

The rules that follow were adopted by the Board at its meeting on Dec. 4, 1920, as a substitute for the rules adopted in August, 1919. Following each rule is a discussion intended to give a general idea of the considerations on which the Bureau of Sanitary Engineering bases its opinions and recommendations regarding fulfillment of the particular rule.

Rule 1. *The Bacterial Contamination of the Water in the Pool Shall be Maintained at a Practicable Minimum.*

The possibility of swimming pool water spreading bacterial infection among bathers is generally recognized. Exact information regarding the magnitude of this danger and its relation to the bacterial quality of the water, as determined by present water analysis methods, is deficient. It is considered, however, that the number of bacteria present does constitute a measure of the cleanness of the water, even though it may not measure definitely the hygienic qualities.

The tentative bacterial limit, adopted by the Bureau of Sanitary Engineering, for water taken from any part of the pool, is 1000 total colonies per cubic centimeter on standard agar medium incubated 24 hours at 37 degrees C., and a B. Coli content that produces gas in not more than half the standard lactose broth tubes incubated 24 hours with one cubic centimeter each of the water. This limit is set, not because it can be definitely stated that greater counts represent dangerous conditions or that smaller counts represent safe conditions, but because studies have shown that counts within these upper limits can be readily obtained by reasonable attention to various details of design and operation that influence the cleanness of pool water.

Pools in which sea water is used apparently accumulate bacteria somewhat more slowly than fresh water pools. The salts of sea water seem to have a moderate disinfecting action that probably can be relied upon to a limited extent in preventing excessive bacterial growths. It can not be asserted, however, that salt water pools are safer on this account. The destructive effect of salt water on the bacteria found in swimming pools has been shown to be rather slow, requiring hours to effect a material reduction. Furthermore, the disinfecting action does not appear to be great with some types, for instance the common intestinal bacteria known as B. Coli.

The number of bacteria in a pool depends primarily upon the number of bathers and upon the quantity of water supplied. Indications are that under the usual operating conditions at least 800 gallons of clean water should be supplied for each bather if the pool is to continue in acceptable sanitary condition. This clean water may be either new water from the original source of supply or it may be pool water that has been purified by any of the accepted methods for removal or destruction of bacteria.

(a) *Fill and Draw Operation.* The simplest type of swimming pool operation is that in which the pool is filled with water, then used for a time, and finally emptied and refilled with new water. Usually the walls and bottom are scrubbed or otherwise cleaned whenever the water is changed. The necessary frequency with which the water is changed may depend upon bacterial contamination, if the patronage is heavy, or it may depend upon other conditions that merely influence the appearance or clarity of the water (see Rule II). So far as bacteria are concerned, the rule for emptying will be based on the approximate allowance of 800 gallons per bather. For instance, a pool of 100,000 gallons capacity operated on the fill-and-draw plan might be used by about 125 bathers before it would be necessary to refill with new water.

(b) *Replacement of Water During Use.* In some cases the pool water is intermittently or continuously replaced by addition of new water while the pool remains in use, making complete emptying necessary at less frequent intervals than in the case of a pool operated solely on the fill-and-draw principle. If the quantity of new water added is large, the frequency of complete emptying may depend more upon conditions that influence the clearness of the water (see Rule II) than upon bacterial content. In this type of pool also it is well to consider that the maintenance of acceptable bacterial quality will require a total water supply of 800 gallons or more per bather.

(c) *Circulation Through Filters.* Without interruption of bathing, water may be removed from one portion of the pool, passed through a filter and returned to another portion of the pool, thereby removing the greater part of the bacteria and permitting the water to continue in use a longer time than in cases (a) and (b). Where filters are used, however, they are usually intended more for removal of color and suspended matter than for removal of bacteria. (See Rule II, Clearness of Water.) In cases of prolonged usage of water in a pool, the maintenance of satisfactory bacterial quality usually requires disinfection, the filters being depended upon almost solely for clarifying purposes. Filtration for bacteria removal alone is much more expensive but no more effective than disinfection.

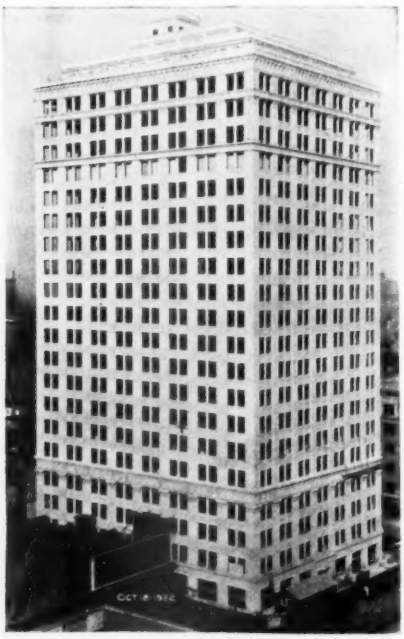
(d) *Disinfection.* Destruction of bacteria in swimming

Three Months and Twelve Days

to enclose

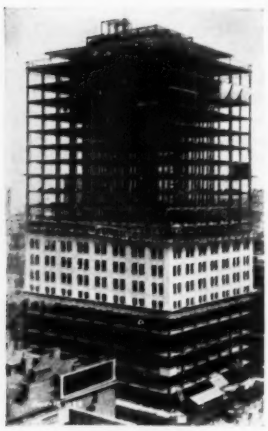
21 Stories on 4 Elevations

July 6, 1922

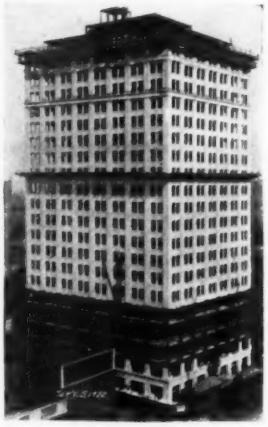


Oct. 18, 1922

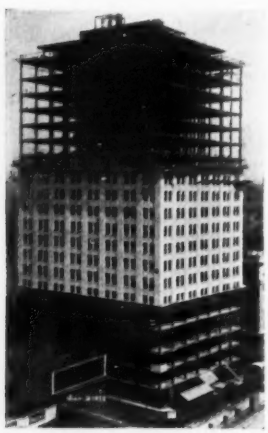
Aug. 17, 1922



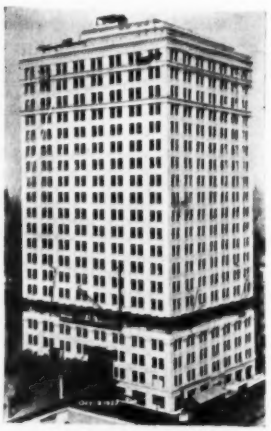
July 18, 1922



Sept. 5, 1922



July 31, 1922



Oct. 2, 1922

Atlantic Refining Company Building
Philadelphia, Pa.

Joseph Franklin Kuntz, Architect;
Metzger, Fisher & White, Builders.
Entirely of Atlantic Terra Cotta
from fourth story up.

The manufacturer's capacity to handle large orders quickly and systematically is always an important consideration.

That the use of Atlantic Terra Cotta permits rapid construction is shown by the progress photographs, taken at intervals of from two to three weeks.

The Architect readily approves the Contractor's selection of the Atlantic Company.

Atlantic Terra Cotta Company
350 Madison Avenue, New York

Southern Factory
Atlanta Terra Cotta Company
Atlanta, Georgia
Largest Manufacturers of
Architectural Terra Cotta in the World

pool water may be accomplished with chlorine gas, chloride of lime, sodium hypochlorite, ozone, ultra violet light, etc. The active ingredient is the same in the first three, namely, chlorine. This is the most common and the cheapest substance now used for water disinfection. Ozone is effective but considerably more expensive, and the same may be said of ultra violet light. Copper sulphate has limited disinfecting action, but its usefulness is mainly confined to the control of algae growths. If used in sufficient quantity to destroy bacteria it is likely to cause the water to take on a milky appearance, due to the precipitation of copper hydrate.

In disinfecting pool water with chlorine gas a proper dose will range from about 2 to 5 pounds per million gallons of water. Chloride of lime generally contains about 25 per cent available chlorine and a proper dose of it consequently will range from about 8 to 20 pounds per million gallons. Sodium hypochlorite is obtained in solution form under various trade names, with available chlorine varying between wide limits.

Chlorine gas is applied with a special device for measuring the flow of gas and feeding it into the pool water in the circulating system.

Chloride of lime may be applied in several ways. For continuous application it is made into a solution with a tank of water, and this solution, passing through a measuring device, is fed gradually into the circulating system. It may also be introduced intermittently to the pool itself, once a day or oftener, as conditions demand. In some cases this is done by placing the powder in a cloth bag which is dragged through the pool until the chemical is dissolved. Another common method is to make a solution of the chemical in three or four gallons of water, strain through a fine cloth or allow to settle in order to remove suspended particles, and then throw or pour the clarified solution over all parts of the pool. The easiest way to make a chloride of lime solution is first merely to add enough water to form a thin paste in which the lumps can be crushed, after which the bulk of the water is added. The reserve supply of chloride of lime should be kept in a tightly covered container in a dry place, to prevent a rapid loss of strength.

Sodium hypochlorite solution may be used, either by feeding more or less continuously into the circulating system or by application intermittently over the surface of the pool.

Rule II. *Water in the Pool Shall at all Times of Use be Sufficiently Transparent, under Existing Lighting Conditions, When the Water Surface is not Excessively Agitated by Bathers, to Enable a Person Standing at the Side of the Pool to Distinctly see the Bottom of the Pool Where the Depth of the Water is Six Feet or Less.*

This rule is made primarily to prevent accidents, due to underwater collisions, and to facilitate quick rescue of injured or drowning bathers. Ability to see into a body of water depends upon several factors, most important of which are turbidity of water, due to fine solid particles in suspension, color of water, due to dissolved coloring ingredients, and light. A very slight turbidity will give to a large volume of water a cloudy appearance and, in the majority of cases, is the principal cause of difficulty in keeping the water of a swimming pool transparent. Only occasionally is the true color of a pool water sufficient to constitute a serious objection. Abundance of light is always desirable. White surfaces on the pool walls and bottom, to reflect the light, may materially assist a pool in complying with this rule.

If the addition of new water is depended upon to maintain the pool clear, the pool will need to be completely emptied and the walls and bottom cleaned at intervals depending upon local conditions. The new water, of course, should be clear. Clouding of the water while in the pool may be caused by lint from suits, dyes dissolved from suits, sand or dirt carried in by bathers from beaches, minerals precipitated from the water, growths of algae or microscopic organism, dust carried by wind, etc. Open air pools are apt to become turbid more quickly than indoor pools for the reason that they offer more favorable conditions for algae growth. A pool will usually begin to show considerable cloudiness within a week if special precautions are not taken to prevent it.

It is often desirable to prolong the use of pool water by removing the suspended matter with filters. The common design provides for removing water from the pool at one or more outlets, passing it through the filter, and then returning it to the pool through one or more inlets. The greatest removal of foreign matter will be attained if the water that flows from the pool to the filter is always the most highly contaminated water of the pool. It would be most desirable to create a condition of uniform velocity over the cross-section of the pool, eliminating all short circuits or direct currents from inlets to outlets as well as all "dead areas." The newly added water could then be considered as having the function of pushing ahead of it all the older water toward the outlets, and the outgoing water would then always be the most used water of the pool. This exact condition is not attainable, however, as numerous counter currents are set up by bathers and temperature effects. The nearest approach is probably made by admitting water at a number of points of various depths across one end of the pool and removing the water at a number of points of various depths across the opposite end. The outlets necessarily should be remote from the inlets, and either an inlet or an outlet should be at or near each corner of the pool, as it is in the corners that dead areas most easily form.

Practically all filters used in connection with swimming pools are of the rapid sand type. While no slow sand filters have been installed to purify pool water, at least in California, it would appear that filters of this type might in some cases offer advantages. Rapid sand filters are made of a moderately coarse sand, are operated at a rate of two or three gallons per minute per square foot of sand surface, and are cleaned possibly twice a week by back-washing with an upward flow of water at a rate three to five times as great as the filtering rate. A slow sand filter handling swimming pool water could probably operate at about 0.25 gallons per minute per square foot, in which case its area would be about ten times that of a rapid sand filter of equal capacity. A slow sand filter is made of rather fine sand, on the surface of which the impurities of the water are laid down as a film or mat that is removed possibly once a month simply by scraping. This type of filter requires no back-washing. Its piping is considerably simpler and its bacterial efficiency somewhat greater than that of the rapid sand filter.

Experience indicates that the filter and circulating equipment should be of sufficient capacity to handle the entire pool contents in 8 to 12 hours, and that a volume of water equal to the entire pool contents should be filtered every day.

At some plants the water is treated with alum as it passes to the filter. A coagulum or floe is thus formed which is intended to aid filtration, but experience has shown that in purifying swimming pool water this treatment is of questionable benefit. Filtration without alum usually gives satisfactory results with pool water if conducted with proper care. Alum requires time to react with the alkalinity of the water to form a floe, and in some cases alum has been an actual detriment because the floe has not formed until the water passed out of the filter to the pool. Separate reaction and coagulating basins do not appear to be

The same care should be given to the selection of electrical material for a building as is used in selecting other elements of the structure

Quality Wire for Quality Jobs

NO architect will question the importance of specifying properly insulated wire. The vulcanized rubber compound which is used by the General Electric Company is the most practical rubber insulation known.

Three standard grades of rubber insulated wire are made: Red Core—the regular commercial grade, more than complying with the National Electric Code requirements. This is especially adapted to the wiring of buildings and is regularly carried in stock by our warehouses and distributors—Tricoat, a slightly better grade, and Thirty-percent—an extra high grade conductor suitable for severe service and high voltages.

Experience of over a quarter century in wire manufacture is reflected in the uniformly high quality of G-E wires and cables—a kind for every use to which wire is put.

For information address:
MERCHANDISE DEPT.
GENERAL ELECTRIC COMPANY
BRIDGEPORT, CONN.

General Electric Company
General Office Schenectady, N.Y.
Sales Offices in all large cities
37-22

warranted in the filtration of swimming pool water. Sea water in particular does not lend itself well to alum treatment.

Copper sulphate treatment of swimming pools is beneficial is destroying algae or moss growths. This is particularly true in outdoor pools where the direct sunlight aids such growths. The dose needed varies with the different organisms and experience is usually necessary to determine the proper dose and frequency of application for a given pool. Usually treatment with half a pound of chemical to each 100,000 gallons of water, repeated two or three times a week, is a satisfactory program. The chemical is most easily introduced by placing it in a cloth bag which is dragged through all parts of the pool until the chemical is dissolved. If a pool is subject to algae growths the treatments should not be delayed until the presence of algae is made apparent by increased turbidity. Copper sulphate does not clarify the water. The desired results are obtained only by keeping the early-comers killed, thus preventing multiplication into the large numbers necessary to cause noticeable turbidity.

Rule III. *Facilities for Adequately Protecting the Pool Water Against Unnecessary Sputum Contamination by Bathers Shall be Provided.* The device used in practically all up-to-date pools to meet this requirement is the combined overflow and expectoration gutter, extending completely around the pool.

This gutter should be attached to or inserted in the wall, with its crest at an elevation three or four inches above the proposed operating water level, then splash will cause a moderate quantity of surface water continually to pass into the gutter, carrying with it floating material. It should be sufficiently open to permit its easy use as a place for persons in the pool to expectorate, but it is desirable so to design the gutter as to minimize the possibility of a bather's fingers or arms coming in contact with the bottom where filth may accumulate. The chance of a bather's arm or foot becoming wedged in the gutter, resulting in possible injury, should also be considered in designing. The gutter surface should be smooth and rounded at the edges to facilitate cleaning, and numerous drain outlets, preferably not over 12 feet apart, should be provided.

Rule IV. *All Persons Known to be or Suspected of Being Afflicted with Infectious Diseases Shall be Excluded from the Pool.*

Rule V. *Contamination of the Pool Resulting from Lack of Personal Cleanliness of Bathers Shall be Maintained at a Minimum.*

This rule necessitates providing ample and convenient bathing and toilet facilities, and preventing the conveyance of outside dirt or soil to the pool enclosure. The swimming pool, it must be remembered, is not to be considered as a proper place to cleanse the body and every practicable means should be provided to prevent its use as such.

Congestion should not be permitted to develop as a result of having too few plumbing fixtures. If patrons must stand in line and await their turn, a potential menace to the quality of the water in the swimming pool results as, under such conditions, some patrons will choose to forego using these fixtures before entering the pool.

In determining the number of fixtures needed it is necessary first to decide upon the maximum rate at which patrons will be admitted to the dressing room sections. In large, heavily patronized bath houses, the rate of arrival may be several hundred an hour. Even the smaller public establishments should afford plumbing accommodations for at least 60 per hour.

Studies recently made of some of the habits of bath house patrons indicated approximately that 14 per cent of the men patrons and 25 per cent of the women patrons use the bath house toilets, and that 36 per cent of the men patrons use the urinals. All patrons should be expected to use the showers. These studies further indicated that the time that should be allowed a person for use of a fixture is as shown in the following table:

	Men	*Women*
Shower	1½ minutes	1½ minutes
Toilet	5 minutes	3 minutes
Urinal	1½ minutes	

Based on these observations, the number of new arrivals at a bath house per hour of each sex that one fixture for each sex will accommodate is as follows:

	Men	*Women*
Shower	40	40
Toilet	86	80
Urinal	111	

Shower rooms should be so located that no bather can go from his dressing room to the pool without passing by, or preferably through, a shower room. The location of showers with reference to dressing rooms should be such that their convenience will be evenly distributed, to avoid congestion of any one shower. All showers should be plainly marked.

The shower water should be comfortably warm, otherwise many bathers will wish to avoid it. Each shower head should be supplied with liquid soap, the containers for which, however, should be of such material or so protected or so located as to prevent their becoming broken and a source of injury to bathers.

Rule VI. *Construction and Appliances Shall be Such as to Reduce to a Practical Minimum Danger of Drowning and of Injury to Bathers from Falls or Collisions.*

Diving into too shallow water frequently results in injury. Depths should be plainly marked at frequent intervals on the sides of the pool. No diving stand or springboard should be placed over water having a depth of less than seven feet.

Obstructions or steps in poorly lighted places should be avoided. Special attention should be given to preventing walks becoming slippery. The best practice in this respect is to build walks of roughened or grooved tile or concrete. Rubber or fibre matting is not favored for sanitary reasons. Walks used by bathers should have ample width to prevent congestion and unnecessary collisions. A width of at least four feet is desirable.

Rule VII. *Dressing Rooms, Hallways, Toilet Rooms, Shower Rooms or Other Places to Which Patrons of a Bath House Have Access, Shall be Kept Clean and Well Ventilated at All Times.*

Rule VIII. *Bathing Suits and Towels When Distributed by the Pool Management to Bathers Shall be Clean and Free From Excessive Bacterial Contamination.*

Rule IX. *The Management of the Pool Shall Have Printed and Posted in Conspicuous Places About the Establishment Notices Briefly Informing Patrons of the Requirements to Which They are Subject in the Maintenance of a Safe and Sanitary Pool.*

Rule X. *A Written Record of All Operations Influencing Sanitation of the Pool Shall be Maintained by the Management and Kept at all Times Available to the State Board of Health.*

Where Art and Detail Unite

A FINISHED piece of Tile, if it could speak, would tell a wonderful story of processes, of close attention to detail, of unremitting care.

How its ingredients are gathered from the far places to insure basic quality; how those ingredients are mixed and ground to make smooth, even texture certain; how the Tiles are shaped, fired, inspected and graded, that the product may carry the elements of merit through to the finishing touch—these represent a multiplicity of operations that command consideration for Tiles as representing work well done.

The architect naturally experiences a sense of satisfaction in dealing with a material in which processes are so carefully regulated.

Then there is the element of the unexpected—in the exquisite colorings which firing yields—making an unusual and ideal union of fixed values and artistic freedom.

THE ASSOCIATED
TILE MANUFACTURERS

Beaver Falls, Pa.

Measuring Sand for Concrete. (4b1)—(*Circular of U. S. Dept. of Commerce.*) The reliability of concrete construction is likely to be increased, and the cost in some cases reduced, by the application of a newly developed method of measuring sand, which is now being tested at the Bureau of Standards of the Department of Commerce. The method has been termed the "inundation method" and consists of measuring sand in a container which has been partly filled with water before the sand is put in, so that when the sand is in, the water is up to the top and the sand completely soaked.

The volume occupied by a given amount of sand when shoveled into a measuring device varies with the moisture content of the sand; the difference in measured volume between dry and moist sand being usually from 10 to 15 per cent and occasionally running as high as 50 per cent. But it is found that if the sand is completely soaked or "inundated" uniform measuring results can be obtained no matter how much the original moisture content may have varied.

In making concrete the proportions of cement, sand, stone, and water are so chosen as to get the required strength and workability with a minimum of cement, since the cement is the chief factor in the cost. Inaccurate measurement of the sand may result in too large a proportion of sand, in which case the concrete is too weak; or in too small a proportion of sand and hence a concrete too rich in cement.

But this rich concrete is not necessarily stronger than the concrete the contractor intended to make, for the sand has brought in some water in addition to that which is added on purpose; and if this extra water is not allowed for and the amount of water added correspondingly decreased the concrete will contain too much water. It will be sloppy and when set will not be dense enough to give the necessary strength. The contractor, therefore, is merely wasting cement and doing good to no one.

It is hoped that with the inundation method it may be possible to specify concrete by the strength required rather than by arbitrary proportions. The contractor can then find the proportions of the materials he is using that will give the requisite strength and can adhere closely to these proportions. The result will be a concrete whose proportions are more nearly what they were intended to be, and with which a lower factor of safety can be used.

Comment.—The above circular was submitted to Mr. Nathan C. Johnson, of Hool & Johnson, Consulting Engineers, for criticism and comment and the following report was received:—Within the past five years, intrinsically valuable laboratory investigations have been made as to proportioning the materials of concrete for strength. Yet there seems to have been little disposition on the part of either engineers or contractors to go further than to write specifications embodying such scientific proportionings, without provision for enforcement in the field, although it has been known for a long time that the customary volumetric measurement of materials for each batch of concrete was uncontrollably inaccurate.

If, therefore, this investigation of the inundation method of proportioning sand serves no other purpose than to direct attention to the necessity and value of insuring more accurate proportioning in field work it will be well worth any trouble that may have been expended on it.

The inundation method itself seems to be along the line of the principles embodied by me in a patented apparatus for grading sands in the field by means of wet measurement. In the course of these investigations, the measurement of saturated sands by batches was attempted in a small way, but abandoned as being sloppy and unnecessarily cumbersome. Out of these investigations, however, arose the weight proportioning method which has now been in commercial use at the Sherman Island Development of the International Paper Company for some two years past. In this latter method *all* materials composing the batch of concrete including the cement are automatically weighed and the results show a remarkable uniformity in strength and remarkable economy both in cement and in labor.

Practically nothing has as yet been published on weight proportioning, although it was first put into practical use some four years ago in Canada to be followed by a refining of the weighing apparatus at the above mentioned job. But, whether the method of proportioning used be that of inundated sands or weight proportioning, too much emphasis cannot be placed upon the necessity for discarding the present haphazard, wasteful and inefficient volumetric measurement and proceeding to a business-like and economical basis, so that a customer who is buying a structure will have some assurance beyond accidental correctness as to the strength and value of his structure.

It will be now of great interest to observe how effective and how well-liked the inundated sand method will prove in practical work. In accuracy, this method and the weight proportioning method are about alike for the measurement of commercial materials, the error in each case being about 2 per cent. to the requirements of commercial procedures and due to the characteristics of the materials separately and in association.

Road Materials of Kansas. (11)—(*Kansas State Agricultural College. Engineering Experiment Station. Bulletin No. 12, by C. H. Scholer. Pages 51. Size 6" x 9". Illustrated.*) A summary of the results of the tests upon the natural road-building materials of Kansas, as made in the Road Materials Laboratory, is presented in this bulletin. The results were secured with the primary object of determining the suitability of the various materials for use in highway construction, but much of the information relative to sand, gravel and stone is equally valuable to those interested in general concrete construction.

Water-bound roads depend for their stability upon the cementing property which the material develops when moistened with water and then dried. Water-bound roads do not give very good satisfaction in regions where there are long periods of excessive rainfall or long periods of drought, neither will this type of road carry very heavy motor traffic without exceedingly high maintenance costs. The water-bound types of roads are represented by earth, sand-clay, gravel and water-bound macadam. In some cases a water-bound base course is used to take a wearing surface of a different type of material, like brick or some bituminous wearing surface. The water-bound base usually consists of coarse stone which is cemented together by sufficient screenings, stone dust or clay to bind the whole together in a firm, compact mass.

Sand-clay roads are built up either of the natural material which shows such a grading of sand and clay as will give a reasonably hard wearing surface when compacted under traffic, or by the addition of sand to a clay road, or of clay to a sand road. This type of road, while offering a considerable improvement over a road consisting of a sticky clay or a loose, friable sand, is not permanent in its nature and would not justify the hauling of materials over any great distance; consequently, definite specifications are not written covering a sand-clay road. There is no definite line of separation between a sand-clay road and a gravel road. A road which is called a gravel road in some localities would be called a sand-clay road in other localities. In general, if less than 25 per cent of the material is coarser

PHILIP A. FARIBAULT JULES E. ROSENTHAL JOHN W. WALLACE

COMMONWEALTH ENGINEERING CORPORATION
103 Park Avenue, New York

February 16th, 1922.

The Master Builders Co.
Cleveland, Ohio.

Gentlemen:—

Your Master Mix material has been used extensively by us during the past. Our organization has installed about one million feet of floors with very satisfactory results in labor cost and dustproof qualities. We find that Master Mix in our brick mortar produces a waterproof joint and in addition permits us to lay brick as low as 16 degrees above zero. This has been of valuable assistance to us on our rush work and we have standardized on this material for winter work of this kind.

Very truly yours,
COMMONWEALTH ENGINEERING CORPORATION,
By Jules E. Rosenthal,
JER:AB Sec'y.

Work on the building of the Dodge Sales and Engineering Company, New York City, progressed without the loss of a single working day at temperatures ranging from 15 degrees above zero, owing to Master Mix being used in the brick mortar. General Contractor, Charles L. Fraser, New York. Architects, Shape, Brady & Peterkin, New York.

The Master Builders Co.
Union Building
CLEVELAND, OHIO
Sales Offices in 70 Cities

For specifications see pages 202, 203, *7th Edition, Sweet's Engineering Catalog and pages* 104, 105, *17th Architectural Edition.*

Master Mix for Mortar

than would pass a ¼-nich screen, the material would certainly be classed as a sand-clay road. The specifications of the Kansas Highway Commission demand a much coarser grading than this before a road could be called a gravel road.

Water-bound macadam roads consist of a roadway surface built up of coarse stone to which has been added the proper percentage of stone chips and dust to obtain a smooth, dense surface when compacted under the roller. The stone dust should have a good cementing value when mixed with water and dried, so that the pieces of stone will be firmly bound together and small particles will not be blown away by winds and the action of motor traffic.

Where the stone does not have proper cementing value or the traffic is so heavy that the stone dust is inadequate for a binder, a bitumen consisting of either a refined tar or asphalt of the proper consistency is used. This is applied as a liquid during the construction and penetrates the surface to a considerable depth, producing what is known as the penetration bituminous macadam. Bituminous material prevents the seepage of water into the stone and the base, and also binds the particles together and lessens the grinding and abrasive action of traffic.

A common type of bituminous pavement in cities, which is also adapted to country pavements, is the bituminous concrete wearing surface constructed upon either a cement concrete or water-bound macadam base. In this type of pavement the wearing surface consists of a mixture of fine and coarse sand and gravel or stone, known as the aggregate, mixed with the bituminous cement, which is applied to the roadway hot and rolled to the desired grade.

Cement concrete pavements consist of properly graded aggregate cemented together by Portland cement. Since the surface of the pavement must take the wear and abrasive action of traffic, it is necessary that the aggregate be tough and durable. Due to the difficulty of securing such stone and gravel in Kansas, a large mileage of the roads in the state consists of the so-called two-course pavement, in which the base course is built up of the softer and cheaper aggregate and the wearing course of the harder and usually more expensive material. Where satisfactory material is available, the one-course type of road is usually preferred.

A large amount of brick-surfaced road has been constructed to date with very satisfactory results. The brick road has been of two types. The monolithic type is constructed by placing the brick on the green concrete surface and grouting between the joints, thus making the brick wearing surface and the concrete base a monolithic slab.

The other type of brick road now being built is the bituminous-filled brick with sand cushion on concrete base. In this latter type of roadway the brick is laid on a thin cushion of sand and the joints between the brick are filled with a proper bituminous filler of either asphalt or refined tar.

To make the test data presented in this bulletin of more practical value, there is included a typical set of specifications governing the various classes of natural materials to be used in highway construction. These specifications agree in general with those of the Kansas Highway Commission and the Bureau of Public Roads.

Following the specifications for each class of material a short non-technical discussion is given covering the more important points in the testing of the materials.

Studies in Wood Decay. (19a31)—(*The School of Forestry of the University of Idaho. Bulletin No.* 1 *by Henry Schmitz and A. S. Daniels. Pages* 11. *Size* 6″ x 9″. *This* bulletin deals with laboratory tests on the relative durability of some of the western coniferous woods, especially those growing in Idaho.

Conclusions.—It would seem that, from the results of the preliminary experiment above discussed, it would be safe to conclude that:

1. White fir and Englemann spruce may not be as susceptible to decay as generally thought.
2. When different genera are considered, the specific gravity of the wood is not necessarily an indication of its durability.
3. Within the same genus, the number of annual rings per inch is not necessarily an indication of the durability of the various species.
4. Certain fungi causing very prevalent and complete heart rots of standing timber may not induce a high rate of decay due to their slow growth.
5. The durability of any wood is not only a question of the inherent properties of the wood itself, but also depends upon the species of fungi prevalent in any particular locality in which the wood is used.
6. Under the conditions of these experiments, western red cedar is the least susceptible to decay, while western white pine is most susceptible and Douglas fir represents approximately the average of durability.
7. Experiments involving the use of the different species of wood under natural conditions are necessary before final conclusions can be drawn.

Sewage and Sewerage of Farm Homes. (29c2)—(*U. S. Dept. of Agriculture. Bureau of Public Roads. Farmers' Bulletin No.* 1,227 *by George M. Warren. Pages* 55. *Size* 6″ x 9″. *Illustrated.*) The aims of this bulletin are to emphasize basic principles of sanitation and to give directions for constructing and operating home sewerage works that shall be simple, serviceable, and safe.

Contents.—Plans and advice. Sewage, sewers, and sewerage defined. Nature and quantity of Sewage. Sewage-borne diseases and their avoidance. How sewage decomposes. Importance of air in treatment of sewage. Practical utilities. Privies. Disinfectants and deodorants. Kitchen sink drainage. Cesspools. Septic tanks, history, purposes, limitations, further treatment of affluent, house sewer, siphons, manhole frame and cover, overflow concrete work, steel reinforcement, sewer from tank to distribution field, distribution field, distribution system, cost data, operation, field data. Grease traps. General Procedure.

Trees for Town and City Streets. (38e2)—(*U. S. Dept. of Agriculture, Bureau of Plant Industry. Farmers' Bulletin No.* 1208 *by F. L. Mulford. Pages* 40. *Size* 6″ *x* 9″. *Illustrated*). Only vigorous trees that will withstand the adverse conditions of a city should be planted on its streets. The habit of growth should be suited to the width of the street, and the foliage should be of a pleasing texture. Trees that bear showy flowers, fruits, or nuts are usually not desirable for street planting. Some trees are also objectionable because their roots penetrate defective sewers; others because they have a tendency to heave sidewalks.

Oaks are probably more generally satisfactory for street planting than any other group of trees, followed closely by elms and sycamores. Palms do not make good shade trees, though sometimes appropriate for formal effects. The silver and ash-leaved maples and the poplars are not often satisfactory.

This bulletin describes the principal trees that are used for street planting in the United States.

Long-Bell Lumber

Saves

Home Construction Costs

LONG-BELL trade-marked lumber is put into construction with a minimum of labor—planing, sawing and sorting; with a minimum of waste in time and materials—and time and lumber in any job represent *money*.

LONG-BELL lumber is surfaced four sides.

It has unusual care in trimming.

It comes full length—uniform in width and thickness in all surfaced stock.

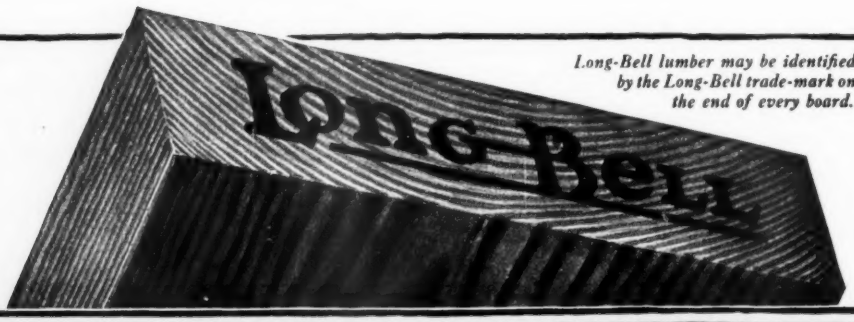
It shows uniform seasoning in both kiln and air-dried stock.

It is uniform in quality through the pile.

Lower grades have had the same care as upper grades.

Tongued and grooved stocks fit snugly.

The Long-Bell Lumber Company
R. A. LONG BUILDING Lumbermen since 1875 KANSAS CITY, MO.



Long-Bell lumber may be identified by the Long-Bell trade-mark on the end of every board.

WREN AS A YOUNG MAN

Courtesy of Architecture (London) *Artist Unknown*